

STATE LIBRARY OF PENNSYLVANIA



3 0144 00620454 9

PY C652.2
B725

CLASS ~~P38.7~~

BOOK ~~4.986~~

VOLUME ~~1937~~



PENNSYLVANIA
STATE LIBRARY



Digitized by the Internet Archive
in 2015

COMMONWEALTH OF PENNSYLVANIA
ANTHRACITE COAL INDUSTRY COMMISSION

Bootlegging or Illegal Mining of Anthracite Coal in Pennsylvania

A Census and Survey of the Facts

1937



P38.7
4.98b

PY C 652.2

B 725

COMMONWEALTH OF PENNSYLVANIA

ANTHRACITE COAL INDUSTRY COMMISSION

W. JETT LAUCK, CHAIRMAN
J. W. ANGELL, VICE-CHAIRMAN
JOSEPH AGOR
M. L. ERNST

September 21, 1937.

Hon. George H. Earle
Governor of the Commonwealth of
Pennsylvania
Harrisburg, Pennsylvania

Sir:

I have the honor to hand you herewith a section of the Commission's Report. This section entitled "Bootlegging or Illegal Mining of Anthracite Coal in Pennsylvania—A Census and Survey of the Facts" will be included in the final report.

Respectfully,

W. JETT LAUCK,
Chairman

WJL/h
Enc.

Mr. H. Hoblitzelle and Mr. W. R. Lynett were members of the Commission at the time the Bootleg Census was authorized but resigned on June 15, 1937, before the Census was completed.

ANALYSIS OF THE STATE

FOREWORD

The report on bootleg mining of anthracite coal which is presented herewith was prepared chiefly by the Commission's own staff. The work as a whole was under the charge of Mr. P. Bernard Nortman as Director of Research, who has also written the largest part of this report. The collection of the original data obtained in the field and the supervision of the field enumerators were directed by Mr. Albion A. Hartwell. The editing, compilation and tabulation of the original data were directed by Miss Dorothy Lasher. The final maps were prepared by Dr. John Hastings, of the College of the City of New York. Mr. Charles Moran, of Shamokin, Pennsylvania, assisted both in making the maps and in planning the field surveys. The Commission desires to express its warm appreciation of the skilful and enthusiastic work of these collaborators in its survey, and also to Miss Frances Sullivan, its Census Secretary; to Mrs. Elizabeth Maher, its Office Secretary; and to the other members of its field and office staff.

The Commission is greatly indebted to a number of State and Federal officials for their help in compiling and transmitting data, and particularly to Mr. Joseph J. Walsh, of the Pennsylvania Bureau of Mines; Dr. O. E. Kiessling, Mr. F. G. Tryon, and Dr. W. H. Young, all of the United States Bureau of Mines; Mr. Frank Ziegler, of the Pennsylvania Department of Internal Affairs; Mr. G. R. Copland and Mr. L. Z. Holcombe, both of the Pennsylvania State Planning Board; Mr. Emmett H. Welch, of the Pennsylvania Emergency Relief Board; and Mr. Emerson Ross, of the United States Works Progress Administration.

JAMES W. ANGELL,
Commissioner in Charge.

August 25, 1937.

CONTENTS

	PAGE
Letter of transmittal.....	i
Foreword	ii
Contents	iii
Chapter I. General Summary.....	1
I. The principal facts about bootlegging.....	1
II. Why bootlegging developed in the southern fields...	4
III. The significance of bootlegging.....	7
IV. The methods used in the present survey.....	9
Chapter II. Highlights in the Development of Bootleg or Illegal Mining	11
I. The origins of bootlegging.....	11
II. The struggle to end bootlegging.....	13
Chapter III. The Setting of the Bootleg Problem: Contribu- tory Causes	17
I. Population changes	17
II. Production and employment after 1924.....	18
III. Shutdowns, the concentration of mining, and em- ployment	24
IV. Surface mining and employment.....	25
Chapter IV. Non-Mining Occupations, W.P.A. and Relief in the Anthracite Communities.....	28
I. Non-mining occupations.....	28
II. W.P.A. and relief expenditures.....	30
III. Summary. Factors contributing to bootlegging....	31
Chapter V. Bootleg Holes and the Bootleg Miner.....	33
I. The bootleg holes: number, output, and number employed	33
II. The bootleg holes: earnings, expenses, length of life	36
III. The bootleg miner: previous occupation, receipt of government help, age, citizenship, educa- tion	39

	PAGE
Chapter VI. Bootleg Breakers, Breaker Workers and Bootleg Trucking	45
I. Bootleg breakers: number, output, cost, length of life	45
II. Bootleg breakers: wages, profits, earnings, expenses	49
III. The Bootleg breaker operator and workers: previous occupation, receipt of government help, age, citizenship, education.....	52
IV. Bootleg trucking	55
V. The financial size of the bootleg coal industry.....	56
Appendices	59
A. Field Schedules and Instructions to Enumerators...	59
B. Office Schedules and Instructions to Editors.....	73
C. Statistical Methods	81
Maps:	
I. The Anthracite Coal Fields of Pennsylvania—Area Investigated.	
II. The Bootleg Area of Southeastern Northumberland County.	
III. The Bootleg Area of Schuylkill County.	

PROPERTY OF THE
PENNA. STATE LIBRARY

CHAPTER I.—GENERAL SUMMARY

I. THE PRINCIPAL FACTS ABOUT BOOTLEGGING

Anthracite bootlegging, or the illegal mining and sale of anthracite coal has developed on an important scale in this country only within the last few years. Its appearance followed closely on the beginnings of the recent nation-wide depression. By 1932, it had become a problem of grave consequence for the whole anthracite industry.

The bootlegging of coal takes place when an unauthorized person or group enters upon coal lands belonging to a second party, digs, picks or otherwise obtains coal, and sells the coal to a third party. The similar trespass and taking of anthracite coal by unemployed miners for their own use alone, though equally illegal, has gone on for many decades without serious protest from the coal companies, and plays little part in the present bootleg problem. Such coal is taken chiefly from culm and refuse banks, and the quantities involved are relatively small. It is the illegal taking of coal *for sale to others* which constitutes the real bootleg problem of today.

Although it is illegal, the bootlegging of anthracite coal has developed into an industry of substantial proportion, with its own techniques, its own internal organization and its own marketing arrangements.

The principal facts about bootlegging are as follows:

In 1936-1937, the bootleg industry produced and sold anthracite coal at the rate of 2,400,000 tons a year. This was nearly 5 per cent of the total output of all the legal anthracite mines in Pennsylvania, but it is far lower than many of the guesses which have been published in the newspapers by inadequately informed observers. Even in the peak year 1935, the bootleg output hardly reached 2,900,000 tons. In 1936-1937, final consumers paid roughly \$16,000,000 a year for bootleg coal. In that year the bootleg industry employed an average of about 7,000 men in bootleg mining operations proper—in the bootleg holes; 2,000 men in picking over old culm and refuse banks; 1,300 men in the bootleg coal breakers; and about 2,700 men in trucking (many of whom, however, also performed other kinds of trucking). The total number of men engaged in bootlegging is hence roughly 13,000. Of the 8,300 men working in bootleg holes and breakers over 5,000, or an average of 60 per cent, have formerly worked in or around legal mines; most of the remainder are young men and boys who come from miners' families; and 99½ per cent of the total have lived in the anthracite regions for at least 10 years. Most of them are also permanent residents of the southern fields alone; few have come in from other anthracite fields. Including the families of the total of 13,000 men now

engaged in bootlegging, and after allowing for those who have other sources of income, some 45,000 persons are now wholly dependent on the bootleg industry for their support.*

Anthracite bootlegging has thus far been confined almost entirely to the southern fields—to Schuylkill and southeastern Northumberland counties (the latter is also referred to as the western field, but for brevity the two will be grouped together in the present study and called southern). This concentration is explained partly by the fact that the coal outcrops are more numerous and more easily worked in the south from the surface than in the middle and northern fields; partly by the entire lack of any means of support other than mining in many of the communities of the southern fields; and partly by the fact that the effects of technological improvements, concentration of legal mining and breaking operations, and the complete abandonment of high-cost legal mines, have all been especially marked in the southern fields. There are innumerable communities in those fields in which bootleg mining and breaking are the only important productive activities now going on, and in which bootlegging is quite literally the sole important means of support. In most of these communities, this situation has prevailed for at least four or five years past. Some 65 per cent of all the bootleg miners are working on the lands of one company alone, the Philadelphia and Reading Coal and Iron Company.

The typical bootleg mining operation is carried on by a group of three to five men (the average is 3.6), working in partnership; very few holes employ men on wages. The majority of these men, 63 per cent, have had previous experience working in or around legal mines; and over 45 per cent of them also have miners' certificates. Contrary to a common popular impression, 99½ per cent of all the bootleg miners have lived in the anthracite regions for at least the past 10 years, except for temporary absences. The number of men who have come in from other parts of the country is negligibly small. The average output in the bootleg holes is 1.3 tons per man per day (less than half that in legal mines), and the average rate of profits per man is \$19.70 per week; but in individual cases both output and profits may vary widely on either side of this average. In a few cases, and for short periods of time, bootleg miners have earned as high as \$79 per week. At present, some 1,965 bootleg mines or holes are in active operation. But the average length of active life of any one hole is only about 7.5 months. The bootleg miner is therefore always having to move on, as he exhausts the accessible coal

* The above figures on output and number of bootleg miners are almost identical with those obtained by the coal companies themselves, in a canvass covering most of the properties, which they conducted in February and March, 1937. It may be hoped that this agreement will end the wild estimates of the size of bootlegging that have been published so frequently.

in one hole and then gambles on starting in another location. In certain regions the whole mountain-side is dotted with abandoned holes, often flooded.

In some cases, the bootleg miners have also built their own crude breakers, and prepare their coal for market on the spot. But most of them send their run-of-the-mine coal to larger and more centrally located bootleg breakers, which are operated as separate business enterprises. It is estimated that there are now 342 such bootleg breakers, or one breaker to every 5.7 bootleg holes. The average bootleg breaker buys 119 tons of run-of-the-mine coal per average week, employs a little under four men, and makes net profits of \$77 a week for its owners. But most of the men working in the bootleg breakers get wages, not profits, and they average only \$14 a week. Bootleg breaking, like bootleg mining proper, is hence a relatively small-scale operation, but it pays its owners much better than bootleg mining. To some extent, the bootleg breakers sell their coal to final consumers in their own trucks. But the larger part of the bootleg output, and especially that which is shipped to more distant points, is sold to independent truckers and retailers who come in from outside the anthracite fields, who buy coal at the bootleg breakers, and who sell as far away as Baltimore, New York and Connecticut. None of the bootleg coal moves by rail. Finally, as in the case of the bootleg miners, 99½ per cent of the bootleg breaker workers have lived in the anthracite regions for at least ten years, though many of the truckers, of course, come in from outside. Forty-seven per cent of the breaker workers have formerly worked in or around legal mines.

Who makes the money from bootlegging? To this question the Commission's study does not give a conclusive answer. Certainly it is not the bootleg miner himself, nor the wage-receiver in the bootleg breakers, nor the small trucker; they make not much more than subsistence wages. The breaker operator receives a substantial sum, on the average, but his profits will never make him a millionaire. If any really large profits are extracted from bootlegging, they must go to the truckers and distributors from outside the anthracite regions, who sell in the more distant markets. But the limited data available on sales prices, trucking and handling costs and the like do not suggest that any one is really getting rich from bootlegging, unless it be an occasional individual who has temporarily worked himself into a semi-racketeering position. Taken by and large, bootlegging pays sub-standard earnings to the great majority of those whom it employs, and pays those earnings in return for work done under sub-standard conditions. The bootleggers' gain from the facts that his coal costs him nothing, that he pays no taxation, insurance or the like, and that distribution by truck is cheaper than by rail up to perhaps 100 miles, are offset by the comparative ineffi-

ciency of the mining methods used and by the fact that the coal must be sold below the market price for legal coal if it is to be sold at all.

Anthracite bootlegging has now been going on, on a large scale, for five or six years. How long will it continue? On that question opinions differ. At the time these pages are written, in the late summer of 1937, bootlegging is naturally at a low ebb. On the other hand, a cold winter with its consequent increase in the demand for coal, or an augmentation of the present economic pressure on unemployed miners, might easily produce a very substantial expansion of bootleg activity in the next few months.

From a longer-run point of view, however, the gradual exhaustion of the coal deposits that are easily accessible from the surface, the increasing severity both in Pennsylvania and in other States of legal restrictions on the trucking and sale of bootleg coal, and the slowly improving prospects for a genuine revival of the whole legitimate anthracite industry, seem to forecast a gradual natural decline of bootlegging in future years. Moreover, the employment in other occupations of the 4,000 odd workers in bootleg holes who have had previous legal-mine experience would, at any time, bring bootlegging to an end overnight, by removing most of the men who have the technical skill necessary to carry it on.

II. WHY BOOTLEGGING DEVELOPED IN THE SOUTHERN FIELDS

Anthracite coal bootlegging is a social and economic phenomenon without precedent in this country. We have long been familiar with strikes, but this is no strike. We have also long been familiar with the destruction of employers' property by disgruntled present or former employees. But here the purpose is not destruction, and there is little real malice; rather the bootlegger is expropriating others' property to his own use, to keep himself alive. The nearest analogue is perhaps the industrial sit-down, that paralyzing new weapon of organized labor. But here again the resemblance is imperfect. The bootlegger seizes property not as a club with which to coerce reluctant employers, but as something which can itself be sold, and thus be converted into food and clothing. Other countries have had some experience with coal bootlegging, but for us it is a new thing. Why did it occur?

Five principal factors have contributed to the appearance and rapid development of bootlegging. The first three of them are more or less common to the whole anthracite region. But they or their effects have been especially pronounced in the southern fields, and in retrospect it seems natural enough that bootlegging should have developed chiefly there rather than in the other fields.

1. *Geological formation.* First and probably most important is the question of geological conformation. The coal veins come to the surface here and there throughout nearly all of the anthracite region. But in the southern fields the veins pitch up and down like the waves of a rolling sea, or did before erosion washed away much of them, whereas in the other fields the beds are flatter. In consequence, in the south the accessible surface outcrops are relatively numerous and easily worked, whereas in the other fields it is usually difficult to get any large amount of coal except by going far underground, or far into the mountain-side. This factor made it *possible* for extensive bootlegging to develop in the south, though other factors also had to come into play before bootlegging could actually take place. The fact that in the southern fields the majority of the outcrops are high up on remote hillsides, covered with shrub and well removed from the main highways and settlements, has also played some part.

2. *The decline of the anthracite industry.* The second factor has been the decline of the anthracite industry as a whole, especially in the last decade. The industry reached its all-time high point in 1917, when nearly 100,000,000 net tons of coal were produced. After the war output returned to roughly the pre-war levels for a time, at 70,000,000 to 90,000,000 tons a year. But in the middle 1920's a downward trend in production began and to date has not yet been definitely reversed. The decline of anthracite began well before the nation-wide depression that started in 1929-1930, and anthracite has had little share in the nation-wide recovery following 1933. The causes and possible remedies for this ten-year decline will be examined in other reports of the present Commission. The important facts here are that anthracite output from the legal mines is now only about 70 per cent of what it was a decade ago, and that employment has fallen still more heavily. Even as compared with 1930, before bootlegging had become extensive, the number of man-days worked in legal mines has fallen heavily. In 1936 it was only 59 per cent of the number worked in 1930. In absolute terms, and without allowance for the net increment of employable young men and boys in six years, the equivalent of over 50,000 men who were employed in legal mines in 1930 cannot get such employment now. This tremendous fall in the employment given by the chief industry in the anthracite regions (and in many places it is the only industry), in the face of the steady growth in population, explains much of the urgent economic pressure that has led so many otherwise honest but unemployed men into bootlegging. The equivalent of roughly 25 per cent of the miners who were employed in legal mines in 1930, but who are not thus employed at present, are now engaged in the various phases of bootlegging.

3. *Technological improvements and concentration.* The decline in anthracite sales that began in the second half of the

1920's forced many companies to seek new internal economies through greater mechanization of the mines, concentration of breaking operations, the intensification of large-scale surface stripping operations, and especially the outright abandonment of high-cost mines. No judgment will be attempted here on whether these steps were in fact economical in the long run, though there is a certain body of informed opinion which now believes they were not well advised even from the companies' own point of view. Whether well advised or not, they obviously contributed a good deal to the mining unemployment of recent years. Moreover, the abandonment of mines in favor of lower-cost operations carried on elsewhere has been particularly serious in the southern fields, and the number of man-days worked there has fallen even more heavily than in the middle and northern fields. This greater decline has reinforced the effects of the factor of geological formation, referred to above, and helps to explain why bootlegging has thus far reached serious proportions in the southern fields alone.

4. *Lack of other employment.* In the smaller anthracite communities there is usually quite literally no way to make a living other than mining and related activities, except for the small service occupations which mining supports. Even in the larger towns the other available industries are few and unimportant. Throughout the region, with few exceptions, farming is almost impossible. These conditions are especially acute in the southern fields. Moreover, when millions are unemployed in the country at large it is almost hypocrisy to say merely that the unemployed miners should go elsewhere in search of work. There is always government assistance, of course, but the miner is independent; he dislikes paternalism; and the increasing deficiencies of the government finances are all too familiar. The vast majority of the bootleggers are only too anxious to live by honest work. One could safely entrust them with one's wallet or house or family. But in many cases, perhaps in most, it seems to be true that the only alternative to bootlegging was something pretty close to starvation.

5. *Law enforcement and public opinion.* Geological conformation made bootlegging possible; unemployment and urgent economic pressure made it seem necessary to the bootlegger, as the only alternative to near-starvation. But it probably could never have developed on any important scale had the ordinary laws of property been vigorously enforced from the outset, and had public opinion condemned it. For reasons which need not be explored here, but which seem fairly obvious, the opposite has actually been the case. Particularly in the southern fields, judges and juries have alike frequently refused to convict for bootlegging, or at most have imposed light sentences. This is, of course, a complete breakdown of the ordinary legal processes in one

sphere. But it is a breakdown of a sort which when once established is difficult to remedy, except by getting at the root causes. Many communities are now dependent on bootlegging for almost their entire means of support, and public opinion has in effect legitimized bootlegging itself.

III. THE SIGNIFICANCE OF BOOTLEGGING

The bootlegging of anthracite has a significance out of all proportion to the relatively small number of men engaged in it or to the value of the coal taken. The principal aspects are as follows:

1. *Capture of legal-coal markets.* First, bootleg coal is sold to final consumers in competition with legally-mined coal, and at a lower price. To some extent the bootleggers have undoubtedly opened up new markets, or have saved old ones that were about to be lost to anthracite. But in the main, bootleg coal merely captures existing markets and thus cuts into the sales of legally-mined coal. It will be recalled that in 1936-1937 bootleg sales were roughly 2,400,000 tons a year, or nearly 5 per cent of the legal output. An industry which is already suffering severely from shrunken markets and output can ill afford to lose so much. In a number of cases bootleg competition probably converted possible operating profits for the legal companies into losses. The Philadelphia and Reading has been the chief loser of the coal taken by the bootleggers, but almost every company has suffered from bootleg competition in the markets.

2. *Damage to underlying coal and other property.* The loss to the legal companies is not measured merely by the quantity of coal the bootleggers take or by the loss of markets. Most of this coal comes from reserves or abandoned lands, is carried on the books at a low figure, and because of its geological location might never have been mined at all by the present companies. But the bootleg holes weaken the rock and dirt formation above coal veins that lie farther down, and when abandoned constantly threaten the deeper legal workings with flooding. They are therefore likely to render permanently unworkable many times more coal than what the bootleggers take out. Tremendous wastage of a scarce natural resource results. In some cases roads, surface buildings and even active legal mines have also been damaged.

3. *The breakdown of the legal process.* This has been referred to at an earlier point, and requires little further comment. So far as concerns the protection of property rights in coal lands, the law has been abrogated throughout much of the southern fields. No citizen, and no believer in orderly democracy, can view this breakdown with equanimity. Yet it is difficult for any

humane person to propose merely that the bootleggers now be driven out by force, without being given any other means of independent livelihood.

4. *The conflict between law and social ethics.* The most profoundly significant aspect of bootlegging lies in the fact just now indicated, that it offers a perfect small-scale example of the basic conflict which runs all through our national life today. This is the conflict between traditional law and traditional property rights, on the one side; and on the other side the conviction which is growing on most people that government bodies and societies as a whole should not and cannot remain indifferent to the fate of those groups that are faced with major economic pressure and suffering. This conviction in turn arises from the common-sense and non-sentimental realization that our modern type of society, with its peculiar organizations and peculiar modes of working, is itself really largely responsible for the position into which these depressed groups are forced.

The anthracite bootleg miners are precisely a case in point. The great majority of the men in the bootleg holes are former workers in or around legal mines, who have been thrown out of work by the intermittent closing down or the outright abandonment of collieries. The rest of the bootleggers are chiefly young men who have been unable to find any steady means of support in their native regions other than bootlegging, and who in earlier generations would normally have gone to work in the legal mines. Virtually all of these men are willing and able to work hard, and they would vastly prefer to take any legal employment for which they are fitted rather than to work at bootlegging. But the anthracite industry as a whole, has shrunk in ten years to hardly two-thirds of its former size; and the concentration of legal operations, the abandonment of collieries, the lack of other employment opportunities either in the anthracite region or elsewhere and the difficulties of government finance have left community after community stranded, with few or no legal means of support for their people. Can the bootleg miner be wholly blamed because he has chosen bootlegging rather than starvation? Clearly the questions involved here cannot be answered easily or quickly.

Traditional legal right is with the coal companies, of course; few have ever questioned that. But on a different plane of judgment, the plane of common-sense ethics rather than of strict law, there is something to be said for the bootlegger. No one will defend trespass or stealing as such. Yet the bootlegger has as much right as anyone to a chance to earn his living honestly; and he has been deprived of that right by forces not within his own control. Merely to say that the bootleggers are thieves and should be jailed, or merely to say that bootlegging is the direct outgrowth of ill-advised policies of the coal companies in earlier

years and that the companies therefore deserve no present sympathy or help, is shallow thinking and of no use. Each statement is partly true, but neither can lead to a solution of today's actual problem. Steps taken in the past are not easily retraced; and it is awkward to put entire communities in the calaboose.

The present study offers no solution for this difficult and complicated problem; it undertakes only to present the main facts about the problem itself. The Commission believes, however, that any permanent solution of bootlegging is necessarily dependent on the rehabilitation and recovery of the whole anthracite industry itself. The Commission's Ad Interim reports explored a number of possible steps looking to this end, and in its final report the Commission proposes to present definite conclusions.

IV. THE METHODS USED IN THE PRESENT SURVEY

The report on anthracite bootlegging which follows is based primarily on the results of a survey of bootleg holes and bootleg breakers which the Commission conducted in May and June, 1937. The Commission sent its own staff of experienced supervisors into the field. These were men trained in the difficult task of collecting, compiling and interpreting original economic statistics. The supervisors in turn selected over twenty men as field agents. These men were of good general education and skilled in personal relations, who had long been residents of the bootleg regions and who had extensive personal acquaintanceships among the men now engaged in bootlegging. They were able to go directly to the bootleg holes and breakers with the questionnaires prepared by the Commission, and to secure accurate replies and general information. No investigators coming from outside the bootleg regions could have done this successfully, since strangers are naturally viewed with great suspicion. Follow-up groups later checked the accuracy and completeness of the original answers to the questionnaires. Finally, a statistical staff in the Commission's office cross-checked the original answers for internal consistency, also checked them where possible against other sources of information, and compiled the totals and averages used in the present report.

The survey directly covered 1,129 bootleg holes and 157 bootleg breakers, viewed as business establishments. In addition, 2,029 bootleg miners and 469 workers in bootleg breakers were interviewed personally. Because of lack of funds, it was impossible to get a 100 per cent coverage of all bootleg operations. But from direct observation, information obtained locally and the results of an aeroplane survey, the Commission's staff was able to gauge accurately the total number of bootleg holes and breakers in the southern fields. The Commission estimates that

its detailed survey covered 57 per cent of all bootleg holes, and 46 per cent of all bootleg breakers. The results obtained from such large samples are believed to represent adequately and fairly the situation in the whole bootleg industry.

The numerical results obtained from the survey itself are described in Chapters V and VI below. The other chapters were prepared by the staff of the Commission, largely from data in the reports of the United States and the Pennsylvania Bureaus of Mines and from local newspaper files.

CHAPTER II. HIGHLIGHTS IN THE DEVELOPMENT OF BOOTLEG OR ILLEGAL MINING

I. THE ORIGINS OF BOOTLEGGING

Bootleg coal mining, which has grown into a depression-born industry in the Southern anthracite coal field, did not appear suddenly. It has long been the practice of miners and their families to pick coal from the refuse banks and outcroppings for their own needs. As far back as 1904, some of the companies attempted to prohibit such people from gleaning on the culm banks, but they were unsuccessful. It was also reported that "many men in the Middle and Southern coal fields are guilty of 'robbing the breaches,' or taking coal from outcrops." * Today, as then, many miners justify this practice by claiming that they were always "docked" in pay for the refuse that went into the coal bank, and that the coal remaining in these banks therefore belongs to them.

The depression in the hard coal industry which gave rise to bootleg mining antedates the country-wide depression of 1930-1933. In fact, the beginning of the decline of the industry can be traced back to at least 1926; and even at present the industry shows no signs of recovery. Production declined from 84 million net tons in 1926 to about 51 million tons by 1935. The number of men employed decreased from 168,734 in 1926 to 100,539 in 1935, while the total value of the product dropped from 466 million dollars in 1926 to 207 million dollars in 1935. The total wages paid labor fell off from 256 million dollars in 1924 to 105 million dollars in 1935. In order to secure the greatest efficiency of operation, after the depression set in, many operating companies began to close their higher cost collieries after 1927. The closing of collieries on a large scale, a phenomenon previously unknown in the region, meant economic distress and even ruin to the communities which had depended for their livelihood upon these collieries. This was especially true in the Southern anthracite area, which derived much the largest part of its earnings from the anthracite industry. Although some towns in the Northern region like Scranton, Wilkes-Barre and Hazelton had become large cities and were able, to some extent, to attract other industries, in the Southern region there are numerous smaller communities such as Pottsville, Shamokin, Minersville, Shenandoah and others, which have remained predominantly coal towns. These small communities, with few exceptions, were able to attract only small light industries commonly known as "sweatshops," which operated for short periods and which employed chiefly women and boys at low wages. As a result of

* Peter Roberts, "Anthracite Coal Communities" (1904), p. 95.

this situation, almost the entire wage-earning population of these communities was directly dependent upon the anthracite industry for its livelihood. The miners depended upon the collieries, and the service, business, and professional class depended upon the mines and the miners.

Previous to the decline of 1926, the anthracite industry and the anthracite communities were rather stable. Because of the high degree of concentration of mine deposits and operations, the industry was not overdeveloped, nor did cut-throat competition prevail. The curve of production moved broadly upward, the number of employed miners grew with production and the number of collieries in operation was adjusted to the growing demand. Moreover, the anthracite region and its towns are relatively old. Most of the additions to the population came from immigrant stocks who took root several generations ago, and their descendants still inhabit the communities. Tradition is deeply rooted. The hard coal miner feels that he belongs to the region, and a close relationship exists between the miners and the industry. Until recently, boys growing up in the coal region usually started in the breakers as slate pickers; then went underground as they grew older, acquiring more experience as door-tenders, mule drivers, and laborers, and they finally became licensed miners. They then set themselves up in the communities and bought their own homes, as their fathers had done before them.

Since about 1926, however, many new factors have been at work to disrupt the industry and the communities. The operators began gradually to lose their markets. Miners became unemployed in large numbers. About 1930, bootlegging as it is known today began. The miners followed their old custom in the Southern anthracite area, and began to take coal from outcroppings and breaches in larger and larger quantities. At first they took the coal for their own use. Then they traded coal for food and clothing. Finally, they discovered that they could sell coal to householders, to friends within their own communities, and then to outsiders. In the early days, many bootleggers did their work in the holes under the cover of darkness, for fear of the law, and drove their trucks at night.

By 1931, the selling of bootleg coal had spread from the outskirts of the coal region to points within a radius of a hundred miles. Three, five, and ten-ton trucks were hauling coal out of the Southern coal area. Shamokin and Pottsville were the centers of the new industry, the latter being the central supply point for such towns as Leesport, Reading, Allentown, Harrisburg, and other regions in this vicinity, while the former was the central point for Bloomsburg, Sunbury, Williamsport, and Milton. Some trucks were even hauling bootleg coal to Philadelphia.

II. THE STRUGGLE TO END BOOTLEGGING

Arrests of bootleg miners were continually made at the instance of the coal companies, on the charge of trespassing. When the first cases came into the local courts they were dismissed with dollar fines, the costs being imposed upon the defendants. The latter were allowed six months to a year to defray these costs, and those acquainted with the situation never expected the fines to be paid, because of the poverty of the defendants. Then the courts, in an effort to stop the practice of bootlegging, increased the penalty for the first offense from ten days to fifteen days in jail and then to twenty days. Second offenders were given longer sentences. Despite these measures, bootleg mining increased to such an extent that if all of the bootleggers had been taken into custody, the capacity of the local jails would have been wholly insufficient. The expenses of prosecution and the costs of maintaining the bootleggers in jail were also becoming prohibitive. Too, many bootleg holes were located in secluded areas which had been abandoned for many years by the operators, were covered with foliage, and were therefore not detected. Finally, the officials who administered the laws came from the coal region. Those who appeared before them as violators of the law were their friends, their neighbors, and their electors. The defendants claimed they bootlegged only for food, clothing, and shelter.

By 1932, however, a change took place in the type of man arrested in the raids on bootleggers. Whereas in the past, the average bootlegger had been considered a rather backward type, those now being brought to justice were fairly intelligent and educated. It was during this year that bootleg coal began to be transported further from the coal region, and in large quantities. It came into New York City, Connecticut, Baltimore and even to some areas further away. The operators at all times attempted to stop this illegal industry. At the end of 1932, the operators made an especially vigorous attempt in this direction. In September of that year, a group of operators appealed to the then Governor Pinchot to place an embargo on bootleg coal. They urged that state police be sent in to prevent bootlegging, since the company police were inadequate. The Governor pointed out that the plan would mean additional police, and that since the administration was economizing, such a procedure could not be followed. Attempts were then made locally to enforce anti-peddling laws against the bootleggers. The operators continued to have bootleggers and truckers arrested. Because of the cold winter of that year and the large demand, however, coal bootlegging continued to thrive and grow.

The trough of the economic depression which enveloped the United States late in 1932 and early 1933 was particularly acute

in the coal region. Though the operators continued to have bootleggers and truckers arrested, the gravity of the economic situation forced a more lenient policy. During 1933 there was much unrest in the Southern coal area. Arrests of bootleggers brought protests from other groups of unemployed but non-bootlegging miners. The miners of Panther Creek Valley walked out and demanded equalization of work between the collieries. Finally, at the end of the year, it was found that the Philadelphia and Reading Coal and Iron Company was about to shut down permanently five mines in the Shamokin area. For the first two months of 1934 the entire community, business men and newspapers protested these shutdowns. Delegations went to see company officials and state officials, and even appealed to Washington, but in vain: the mines were shut.

In the meantime, with most of the mines shut down throughout the Southern area and the economic situation growing desperate, bootlegging continued to increase. Two physical factors were at play which contributed to the spread of bootlegging at this time. In the first place, the early part of 1934 was unusually cold, so that the general demand for coal was high. In fact, the demand was so great that bootleg prices were only slightly below the prices of legitimate coal. Second, the region itself felt a coal shortage. No inhabitant of the coal region would ever think of using a competitive fuel, and yet the closing of the legal collieries left the people without their customary source of coal, since retail coal yards are unknown in the coal region. To obtain coal for that severe winter, therefore, the one recourse was the bootlegger. This situation caused the condonation of bootlegging even from the pulpits.

In February, 1934, the U. S. Department of Labor, taking cognizance of the protests against the shutting of the mines, appointed the Goodrich-Price-Hanna Committee to investigate and report on the situation. The committee submitted its report in April of the same year, pointing out the seriousness of the situation entailed by the shutting of so large a number of collieries in the Southern coal fields. But nothing else was done.

In the summer of 1934, with a slight current improvement in economic conditions and the granting of government aid to the unemployed, the operators renewed their drive on the bootleggers. In August, the City of Philadelphia appointed a Director of Weights to enforce the weighing of coal. Bootleg trucks were followed and arrests were made. To meet this threat to their industry, the bootleg truckers organized into the Shamokin Truckers Association, and the miners into the Independent Coal Miners of Shamokin and Vicinity. Legislation requiring permits for truckers was also proposed in Baltimore, but petitions prevented the passage of such measures. Nor did these attempts

at legislation against the bootleggers, and local arrests, prevent the bootleg coal industry from expanding.

In March, 1935, the mine operators and the Pennsylvania Retail Merchants Association requested the help of Governor Earle to end bootlegging. As a result of this request the Governor stated that he would call a conference of operators, union members, police and county officials. In addition, as a temporary measure highway surveillance was increased, the weight of coal was checked, and the license numbers of truckers were recorded. To meet this situation the bootleggers, who had been organized for the previous two years only in local units throughout Northumberland and Schuylkill counties, called an all-region conference in April for the first time. The Governor's meeting, however, never materialized.

About this time the bootleggers pleaded not guilty when arrested and called for jury trials. The juries, necessarily composed chiefly of friends and neighbors, refused to convict them. The operators, despairing of convictions in Northumberland and Schuylkill counties, transferred cases to Harrisburg in Dauphin county. But this step, too, proved to be ineffective in curtailing bootlegging.

During April the Holstrom Bill, calling for the issuance of permits to coal haulers on state highways to be issued by the Public Service Commission for safety purposes, was about to be voted upon in the State legislature. The bootleggers, seeing in this bill an attack upon them, obtained a hearing on the measure. When the hearing was called, 5,000 bootleggers marched on Harrisburg, and the bill never again reached the floor of the legislature.

From September to December of 1935, the Anthracite Institute and the National Retail Coal Merchants carried on a vigorous publicity campaign against the bootleggers. They imported metropolitan newspapermen and photographers into the coal region to report on the situation. A meeting was held at Hershey to formulate further plans and to set up a fund to combat bootlegging. A further plea was made to the Governor with the demand that the State take action. The bootleggers too, who were incensed at the importation of outside newspapermen who lacked understanding of the situation and who did not remain long enough to gain this understanding, held various meetings for the purpose of stiffening their resistance against the Anthracite Institute. In December of 1935, the bootleggers met with the District Attorney in Harrisburg to discuss their problem, and stated that the reopening of the mines would stop bootlegging. It was during this year of 1935 that the peak production and sale of illegal coal was reached.

In February, 1936, the coal operators again called upon the

LS04543

Governor and asked that bootlegging be ended. The Governor's reply was that as long as local authorities could cope with the situation without requesting aid from him, state troops would not be employed. He also stated that more sympathy and moral responsibility toward the unemployed miners ought to be shown by the operators. The operators then turned from the State of Pennsylvania, and together with the coal retailers in New York City demanded of that city an investigation of bootlegging. New York City, New York State and Baltimore were likewise preparing to pass laws designed to prevent bootleg coal from reaching their territories. On the charge of receiving stolen property, two truckers were arrested in New York City and ten were held for material witnesses. The Independent Miners' and the Truckers' Associations fought the case. Finally the New York Grand Jury censured the State of Pennsylvania for permitting bootlegging to exist, and requested that bootlegging be stopped at its source. The situation was reaching a climax.

In December of 1936, Governor Earle made a three-day personal tour to examine first hand a situation which he called the "greatest conflict between moral and legal rights." At the completion of the tour, he decided to appoint an investigating commission. One of the first acts of the special session of the State Legislature in 1937 was, therefore, the creation of the Anthracite Coal Industry Commission. In its Ad Interim Reports of May, 1937, the Commission made definite proposals for the elimination of bootlegging. After the presentation of these preliminary proposals, the Governor decided to call a conference of operators, bootleggers, local officials, and the United Mine Workers and the Commission to formulate plans for the elimination of bootlegging. This conference is now pending, and is expected to be held in the fall of 1937.

The latest developments regarding legislation are the signing of a bill by Governor Lehman of New York, last June, designed to stop bootlegging, and the signing of a municipal bill by Mayor La Guardia of New York City, regulating the sale of coal. Two of the stipulations in the latter bill are that the loading and emptying of trucks must be completed on the same day, and that the driver must possess a certificate of origin of the coal. New Jersey and Baltimore are preparing similar legislation. Nevertheless, bootlegging continues, although on a slightly smaller scale than in 1935 and 1936.

CHAPTER III. THE SETTING OF THE BOOTLEG PROBLEM: CONTRIBUTORY CAUSES

I. POPULATION CHANGES

Bootleg mining, as it now exists in the Southern anthracite area, cannot be explained entirely in terms of the highlights in the history of bootlegging presented in the previous chapter. It is necessary to look back to understand the problem of bootleg mining, for what has happened in the past vitally affects the present situation.

Waves of immigration from abroad gave the hard coal region most of its miners. Up to about 1890 the immigrants were chiefly experienced Welsh, English, Scotch, Irish and German miners. From 1890 onwards they were chiefly Slavs, Lithuanians, Poles and Italians. Most recently of all, there have been some Spanish immigrants. To a large extent, this influx of immigrants was not caused by the natural flow of population from other parts of the world or from other regions of the country. Rather, the immigrants were brought in by the anthracite companies themselves. In many cases their passages were paid for, and the workers were led directly from trains and boats to the anthracite communities.

Immigration into the coal region virtually ceased about 1912. By 1930 the population of the four chief coal producing counties had reached 1,119,515 people, of whom 39.8 per cent were located in Luzerne, 27.7 per cent in Lackawanna, 11.5 per cent in Northumberland and 21.0 per cent in Schuylkill county.*

Table I below shows the recent population and anthracite production changes.

TABLE I.—PERCENTAGE INCREASES IN POPULATION AND PRODUCTION OVER
PRECEDING YEAR SHOWN

Year	Population							Anthracite coal pro- duction (net tons)
	United States	Pennsyl- vania	Four coal counties	Schuyl- kill	North- umber- land	Lu- zerne	Lacka- wanna	
1900 *.....	20.7	19.9	24.9	12.2	21.7	27.8	36.4	27.5
1910	21.0	21.6	29.0	20.2	22.6	33.5	33.9	45.9
1920	14.9	13.8	10.3	4.7	9.6	13.9	10.3	7.1
1930	16.1	10.5	10.1	8.2	5.3	13.8	8.4	—23.3
1935 †.....	3.6	4.2	—0.2	0.6	1.2	—0.2	—1.7	—25.3

Source: United States Bureau of Census, Pennsylvania State Planning Board and Pennsylvania Bureau of Mines.

* Figures represent percentage increase of 1900 over 1890.

† Figures for United States and Pennsylvania from United States Bureau of Census; figures for counties from unpublished tabulations of Pennsylvania State Planning Board.

From 1890 to 1910 the population of the four chief coal producing counties, which was 11.6 per cent of the total population of the State of Pennsylvania in 1930, increased at a rate greater than either the increase of population for the State or for the United States. These were also the decades of greatest growth in the coal industry. Since 1910, the population of the United States has been increasing but at a decreasing rate. The popu-

* Since over 90 per cent of anthracite is mined in these four counties, a study of conditions in these counties is representative of the entire industry.

lation of the State of Pennsylvania and of the four chief coal counties show similar movements, except that the trend of the State shows a slower rate of increase than the country as a whole and that the four coal counties show even slower rates of increase in population than does the State. But although the population of the coal region was decreasing relative to the rest of the country after 1910, the production of anthracite decreased relatively even more. In consequence, the anthracite region found itself with an excess of population by about 1925.

Subsequent to the beginning of the depression in the coal region in 1926, and in the country at large after 1929, many changes have taken place in population. The 1935 population data indicate that the movement of population out of the State of Pennsylvania, which was well defined before 1930, was accentuated by the depression. The coal counties show trends similar to the entire State. Of the coal counties, Luzerne shows a loss of population of 0.2 per cent since 1930. Lackawanna shows a decrease of 1.7 per cent since 1930. Schuylkill and Northumberland counties, which were the most severely affected by the depression in the coal industry and where bootlegging chiefly prevails, show slight increases in population; the population of the former county increased by 0.6 per cent and the population of the latter county increased 1.2 per cent.

Comparisons between the changes in population in the coal region since 1930 and the large decreases in coal production indicate that in spite of the lack of employment opportunities, relatively few people left the region. The fact that population in the two counties where bootlegging is rarely practiced dropped slightly more than it did in the two counties where bootlegging prevails, can be attributed to the fact that some of the unemployed miners of the latter region remained at home to bootleg rather than trying to find employment elsewhere. It is also a well-known fact that because of the close relationship between the miner and his industry, he is reluctant to leave to seek other employment. The miner has hope and faith that his colliery will soon reopen, and that he will have his job back again. Despite this, many unemployed miners did leave the coal region to seek work elsewhere; but because of the lack of employment opportunities in all parts of the country, they were forced to return. Of the bootleggers questioned in the Commission's survey, 14 per cent had left the region at some time to seek employment elsewhere, but had later had to return because no such employment was available. Of those questioned, 99.5 per cent had lived in the region or county at least ten years ago.

II. PRODUCTION AND EMPLOYMENT AFTER 1924

The decline in employment and in the production of anthracite coal was felt differently in the various counties. Though declines

in production were felt equally in the four chief anthracite producing counties, declines in employment were more accentuated in Northumberland and Schuylkill counties, where bootlegging now prevails. Table II shows the situation.

The percentage declines in production from 1924 to 1936 were nearly the same for the four coal counties. Of the two northern counties, production fell in Luzerne by 38.6 per cent, and in Lackawanna by 45.3 per cent. In the two southern counties, where bootlegging prevails, the percentage declines in production were slightly smaller. Production fell in Schuylkill county by 35.9 per cent, in Northumberland county by 27.7 per cent. When the declines in employment are examined, however, a very different picture is obtained. Relative to declines in production, from 1924 to 1936, employment fell much more in the Southern field than in the Northern field. In Schuylkill county employment fell 49.1 per cent, in Northumberland county 48.7 per cent. Among the northern counties, employment dropped by only 29.9 per cent in Luzerne county and by 45.3 per cent in Lackawanna county.

The severity of the drops in employment relative to the declines in production, in Northumberland and Schuylkill counties, is accentuated when these production and employment changes are placed side by side. In Northumberland county the decline in employment was almost twice as great as the decline in production. In Schuylkill county, the drop in employment was almost 1.5 times as large as the drop in production. A different situation prevails in the other two counties. While in Schuylkill and Northumberland counties the declines in employment far exceeded the declines in production, in Luzerne county the drop in production was greater than the drop in employment, while in Lackawanna county production and employment fell by the same amount.

Man-days worked per year also fell relatively more in Northumberland and Schuylkill counties than in Luzerne and Lackawanna counties. In the two Southern counties from 1924 to 1936, man-days worked per year declined by 60 per cent in Northumberland county and by 64.8 per cent in Schuylkill county. In the two Northern counties, man-days worked per year declined by 52.9 per cent from 1924 to 1936 in Luzerne county and by 55.1 per cent in Lackawanna county for the same period.

The increase in the productivity of the anthracite miner in the southern field was greater than in the northern field. The factors which tend to increase productivity per man include the closing of higher cost mines and of the less favorable portions of other mines remaining in operation, better ventilation, improvements in hauling, mechanical drilling and loading, ad-

TABLE II.—ANTHRACITE PRODUCTION (NET TONS), EMPLOYMENT, DAYS AND MAN-HOURS WORKED PER YEAR

Year	SCHUYLKILL				NORTHUMBERLAND				LUZERNE				LACKAWANNA			
	Pro- duction (000)	Em- ploy- ment	Days worked	Man- days (000)	Pro- duction (000)	Em- ploy- ment	Days worked	Man- days (000)	Pro- duction (000)	Em- ploy- ment	Days worked	Man- days (000)	Pro- duction (000)	Em- ploy- ment	Days worked	Man- days (000)
1924	19,238	37,672	271	10,215	7,208	14,660	273	4,008	34,711	63,308	270	17,094	20,392	35,846	276	9,880
1925	14,051	36,955	169	6,258	4,950	14,812	161	2,380	24,496	64,215	184	11,808	13,962	37,359	187	7,000
1926	18,546	37,833	238	8,999	6,690	14,372	236	3,391	33,552	65,949	247	16,291	19,676	39,273	242	9,503
1927	18,334	37,829	222	8,398	6,780	14,640	220	3,221	31,436	66,615	234	15,588	17,394	38,309	223	8,543
1928	17,671	35,510	216	7,670	6,271	13,737	207	2,844	29,501	64,282	223	14,335	16,764	37,414	227	8,490
1929	16,420	34,430	212	7,299	5,867	11,502	228	2,622	29,569	63,217	227	14,123	17,204	36,291	243	8,819
1930	15,673	33,082	196	6,483	6,749	11,354	265	3,010	27,456	61,114	213	12,991	15,313	36,317	212	7,689
1931	12,926	25,654	185	4,748	5,729	11,326	185	2,101	23,767	59,225	175	10,359	12,769	33,797	185	6,288
1932	10,480	21,507	164	3,516	4,679	10,084	181	1,823	19,328	50,231	154	7,724	11,729	29,700	169	5,012
1933	10,252	21,547	167	3,602	5,103	7,980	211	1,682	19,861	44,450	170	7,540	11,090	21,375	209	4,463
1934	12,912	21,062	195	4,097	5,767	8,161	240	1,959	21,438	46,737	192	8,991	12,441	22,954	235	5,384
1935	10,762	19,697	181	3,570	5,469	7,757	222	1,724	21,059	43,701	181	7,899	10,437	20,889	206	4,302
1936	12,333	19,159	188	3,598	5,208	7,525	213	1,606	21,314	44,404	181	8,049	11,155	19,605	224	4,440
Per cent change, 1924-1936	-35.9	-49.1	-30.6	-64.8	-27.7	-48.7	-22.0	-60.0	-38.6	-29.9	-33.0	-52.9	-45.3	-45.3	-18.8	-55.1

Source: Pennsylvania Bureau of Mines, Annual Reports.

vances in preparation practice, consolidation of breakers, deferring of development work during the depression, and diminished opportunity for employment. In a recent study, it is shown that productivity is much affected by the physical condition of the vein, and that in general the tonnage mined per man per day is higher in the steeply pitching veins than it is in the Northern field.* It is important to note, however, that the steeply pitching veins often yield much smaller proportions of the profitable domestic sizes†, so that even where the tonnage yield is high the dollar yield per man-day of labor may be less than in some of the flat-lying measures of the Northern field.

The productivity of employes in the anthracite industry for the entire region shows a decrease from 1872 to 1927 of 9.3 per cent and an increase of about 14.9 per cent from 1927 to 1935. In the Southern coal field, productivity per man employed increased from 11.0 per cent from 1882 to 1927 and by 27.7 per cent from 1927 to 1935. In the Middle Western field, productivity of all employees decreased by 12.2 per cent for the 1877 to 1927 period and increased by 19.5 per cent for the 1927 to 1935 period. In the Panther Creek Valley, productivity increased by 12.5 per cent from 1877 to 1927 and increased by 2.6 per cent from 1927 to 1935. In the Eastern Middle field, productivity decreased by 39.7 per cent from 1877 to 1927 and showed an increase of 12.1 per cent from 1927 to 1935. In the Nanticoke area, the decrease in productivity from 1877 to 1927 amounted to 27.9 per cent, and for the 1927 to 1935 period the increase amounted to 20.3 per cent. Productivity in the Wilkes-Barre area declined by 22.4 per cent from 1877 to 1927 and increased by 22.3 per cent from 1927 to 1935. In the Lackawanna area, productivity decreased by 33.6 per cent from 1877 to 1927 and increased by 13.7 per cent from 1927 to 1935.*

These sharp declines in employment, man-days worked and the increase in productivity of labor in the Southern area were the chief immediate causes of bootlegging. An examination of other data throws further light on this. In 1924 there were 122 active underground mine operators working 257 active mines in the four coal counties. In 1936 there were 169 underground mine operators, but they worked only 242 active mines. This change over a period of twelve years is not large, but the table below, which shows the changes by counties, is very revealing.

* The data on productivity are taken from an unpublished report by D. C. Ashmead, which forms part of the Mineral Technology and Output Per Man Study conducted under the auspices of the Works Progress Administration, National Research Project on Reemployment Opportunities and Recent Changes in Industrial Techniques. The data are preliminary and subject to revision.

† F. G. Tryon, L. Mann, and H. O. Rogers, U. S. Bureau of Mines, "Coal in 1930," page 746.

TABLE III.—NUMBER OF OPERATORS AND ACTIVE MINES BY COUNTIES

Year	Schuylkill		Northumberland		Luzerne		Lackawanna	
	Opera- tors	Mines	Opera- tors	Mines	Opera- tors	Mines	Opera- tors	Mines
1924	27	75	10	24	45	90	40	68
1927	25	71	9	21	45	93	36	64
1930	25	55	7	14	40	89	41	70
1933	30	45	7	10	49	86	70	105
1936	32	45	7	11	62	93	68	93
Per cent change,								
1924-1936	+18.5	-40.0	-30.0	-54.2	+37.8	+3.3	+70.0	+36.8

Source: Compiled from Annual Reports of Pennsylvania Bureau of Mines.

It is at once apparent that a significant shift in the number and location of operators and of active mines took place after 1924. In Northumberland county, though only three operators dropped out from 1924 to 1936, there was a decline of 54.2 per cent in the number of active mines. The same sharp drop in the number of active mines occurred in Schuylkill county, where there were 40 per cent fewer mines in 1936 than in 1924. In Luzerne and Lackawanna counties, on the other hand, the number of operators and of active mines increased precipitately. Although production in the four counties shows about equal declines, this increase in the number of active mines probably gave more employment opportunities to the miners in the northern area than to those in the southern region. This may account for some of the smaller declines in employment in the northern area relative to the larger declines in the southern region. The increase in the number of active mines in the northern area, and the increased employment opportunities here, are due to the fact that the large companies in these districts gave leases to small operators. No such policy was pursued by the large operators in Northumberland and Schuylkill counties.

Although the large companies in the northern anthracite area eased the employment situation by leasing small workings to independent operators, the dominant production and employment factor in the anthracite industry is still the large company itself. From the inception of the industry, production has been controlled by a comparatively few large operators, so that even now nine large companies, seven of which are known as the line companies, produce two-thirds of the total legitimate tonnage. In 1934, for example, they produced 69 per cent of the total legitimate tonnage, while thirteen other companies produced another 15 per cent. The remaining 16 per cent was produced by 166 companies. Of these latter 166 companies, producing only 16 per cent of the tonnage, 122 companies produced less than 50,000 tons apiece in that year. Many of these 122 companies were small operators not much larger than bootleg holes, and were chiefly located in Lackawanna and Luzerne counties. Table IV shows the number of companies in each production group in 1934, by counties.

TABLE IV.—NUMBER OF COMPANIES GROUPED BY PRODUCTION, BY COUNTIES, IN 1934

Production group	Schuylkill	Northumberland	Luzerne	Lackawanna
More than 1,000,000 tons.....	4			5
500,000 to 1,000,000.....	4	3	3	3
100,000 to 500,000.....	11	0	10	4
50,000 to 100,000.....	1	2	4	11
10,000 to 50,000.....	5	0	21	20
Less than 10,000.....	6	4	19	40

Source: Compiled from Annual Report of Pennsylvania Bureau of Mines from list of Anthracite Companies according to Production.

The large companies producing more than a million tons have holdings and operations which are located in more than one county and it is, therefore, better to group them as shown in the above table.

In order to account for the large declines in employment relative to production in the southern counties where bootlegging prevails, however, it is necessary to explore further the employment possibilities which were available to the miners in these counties.

The falling off of the anthracite market in general, the increased demand for smaller sizes, the failure to go after new markets, and the obtaining of more steam sizes than domestic sizes from the run of the mine coal in the steeply pitched southern veins, have caused the closing of a large number of mines in the southern area since 1927. In Schuylkill and Northumberland counties, four large companies produce over 95 per cent of the tonnage. When the production and employment of these large companies decline seriously, the mining communities are literally left without a source of income. Table V shows the very large decreases in active mines worked, and in the number of men employed, by the four large companies which dominate Northumberland and Schuylkill counties.

TABLE V.—NUMBER OF ACTIVE UNDERGROUND MINES AND EMPLOYEES, BY COMPANIES

Year	SCHUYLKILL COUNTY					
	Philadelphia & Reading Coal & Iron Co.		Lehigh Valley Coal Co.		Lehigh Coal & Navigation Co.	
	No. mines	* Employees	No. mines	Employees	No. mines	Employees
1927.....	33	17,842	6	3,173	5	4,009
1930.....	18	13,956	4	3,404	5	3,837
1936.....	8	6,231	2	903	4	3,317

Year	NORTHUMBERLAND COUNTY			
	Philadelphia & Reading Coal & Iron Co.		Susquehanna Collieries Co.	
	No. of mines	* Employees	No. of mines	Employees
1927.....	9	5,928	5	4,677
1930.....	6	5,294	3	2,664
1936.....	4	3,710	2	1,171

Source: Compiled from the Annual Reports of Pennsylvania Bureau of Mines.

* All the above employee data for all companies contain all the workers employed in and around a mine, including breaker employees, with the exception of the 1936 data for the Philadelphia & Reading Coal & Iron Co., whose employees for their two central breakers are listed separately in the Annual Report of the Pennsylvania Bureau of Mines for 1936 and are not included above. These two central breakers employed an average of 634 employees during 1936.

What has happened in those counties where bootlegging prevails is obvious from the above table. All companies except the Lehigh Coal & Navigation show tremendous declines in the number of active collieries and in employment, the most serious drops in employment occurring from 1930 to 1936. Even in those collieries which continued to operate, the number of days actually worked was small, especially in the Lehigh Coal & Navigation Company.

III. SHUTDOWNS, THE CONCENTRATION OF MINING, AND EMPLOYMENT

A more detailed examination of the closing of the mines shown in the above table, and of the location of the abandoned areas, further indicates the effect of the shutdowns on the communities involved. The Philadelphia & Reading Coal & Iron Company, which dominates the Southern field, had 42 collieries in Northumberland and Schuylkill counties in 1927, of which 9 were in Northumberland county and 33 in Schuylkill county. By 1936 there were only 12 active collieries left, of which four were in Northumberland and eight in Schuylkill county. The others had been abandoned, and were flooded. Of the Philadelphia and Reading's underground collieries in Northumberland county only the Bear Valley colliery, with an average of 873 employees in 1936, is still operating in the Shamokin district, whereas in 1927 there were six active collieries in that district employing on the average 3,364 miners. In the Pottsville area, of 14 collieries active in 1927 with 8,112 employees, only the Brookside, employing 733 men, remained active in 1936. The ten other collieries active in 1936 were located in the Ashland and Mahanoy areas, and employed on the average 8,335 miners; in 1927 these two areas had 22 active underground collieries, employing an average of 12,294 miners. The areas of the greatest distress, however, are the Shamokin and Pottsville areas, which with the exception of one mine each have been completely abandoned by the Philadelphia & Reading Company. The reasons advanced by the company for the closing of the mines in these areas in preference to those in the Ashland-Mahanoy City areas are the decline of the demand for the Shamokin and Pottsville grades of coal, the general decline of the anthracite market, and the higher cost of operation of these mines compared to others. It may be pointed out, however, that since there is a concentration of Philadelphia & Reading mines about the new central breakers built in 1930 and 1932 in Ashland and Mahanoy City, respectively, it was probably more desirable to keep active the mines surrounding these new gigantic breakers, which have large overhead expenses, than to keep active the

mines in the Shamokin and Pottsville districts. Where the legal mines were shut down, bootlegging began to develop.

Other large companies in Northumberland and Schuylkill counties also closed many mines, although at a more gradual rate than the Philadelphia & Reading Company. Thus the Susquehanna Collieries Company had five mines in Northumberland county in 1927, employing on the average 4,677 miners. Of these, two were in the Shamokin district and employed 1,617 men, while three were in Mount Carmel Township in the Ashland district, with an average of 3,060 men. In 1936 this company had only one active colliery, the Pennsylvania, which is located in Mount Carmel and employs on the average 1,103 men, and a slope at Hickory Swamp employing 68 men. However, in 1936 the Cameron Colliery of the Susquehanna Company, in the Shamokin district, was leased to the Stevens Coal Company, and gave employment to 873 more men. In Schuylkill county, the Lehigh Valley Coal Company had six active mines in the Ashland district in 1927, employing on the average 3,173 men. It had only two collieries active in the same district in 1936, employing 903 men. The Lehigh Valley Coal and Navigation Company, which in 1927 had five collieries in the Schuylkill Valley portion of the Panther Creek Valley, employing 4,009 men, combined two of them and thus had four working in 1936, but with only 3,317 men employed.

IV. SURFACE MINING AND EMPLOYMENT

The concentration of production in fewer mines thus brought about much larger relative declines in employment than in production in Schuylkill and Northumberland counties, whereas the inverse development occurred in the northern counties (Table II pg. 20). Coupled with this was the intensification by the southern operators of surface mining by stripping operations, and the reclaiming of culm banks to lower the cost of production.* These steps also caused sharp relative drops in employment. For the entire anthracite field the percentage of strip mining to total production increased from about 3 per cent in 1929 to an average of 10 per cent of total production for the years of 1933 to 1936. Culm bank output for the entire field increased from about 1 per cent of total production in 1929 to about 6 per cent in 1933, though in 1936 culm bank operations dropped to 3 per

* It has been claimed by some experts that surface operations, far from decreasing the cost of production, in the long run actually increase it. It is said that underground mining becomes sporadic and therefore expensive, the cost of maintenance is increased, and the mines beneath the stripping activities become flooded, requiring huge sums to be spent later for dewatering. Also, strip mining destroys the landscape of the mining region.

cent of total production. A comparison by regions presents a clearer picture, as shown in Table VI.

TABLE VI.—PERCENTAGE OF SURFACE OPERATIONS TO TOTAL PRODUCTION BY REGIONS

Region	Strip pits		Culm bank	
	1934	1936	1934	1936
Western Middle	14.1	11.3	12.3	7.3
Southern	22.4	24.4	2.8	4.2
Eastern Middle	23.8	25.6	2.2	0
Northern	2.4	1.0	2.1	1.3
Total	10.1	9.2	3.7	2.9

Source: Compiled from United States and Pennsylvania Bureaus of Mines, Annual Reports.

The relative output of surface operations in the Schuylkill field is thus larger than in the two northern counties, although the percentage of surface mining to total production is also large in the Eastern Middle field. Surface output reached its height in the Southern field in 1936, when 28.6 per cent of the total production was obtained in this manner. Moreover, the Eastern Middle field includes the Panther Valley, which likewise contributes a high percentage of the stripping output. If the percentage of stripping operations of the Panther Creek Valley be added to the surface operations of the Western Middle and Southern fields, because it is more closely related geographically and in its problems (including shutdowns and bootlegging) to the Southern fields it is apparent that these fields taken together have by far the largest percentage of surface operations.

The Philadelphia & Reading Coal & Iron Company, which dominates the Southern field, embarked on large surface operations in order to lower the average cost of operation, and to feed its two huge central breakers. Surface operations of this company, which in 1929 had been only 6 per cent of total production, reached 25 per cent of the total in 1936. The extent of the change to surface operations by this company is more fully brought out when it is realized that while total production decreased by about 23 per cent from 1929 to 1936, its culm bank operations increased about 140 per cent and its stripping operations increased by nearly 400 per cent in the same period, while its underground mining decreased by about 40 per cent.

Any shift to surface mining has the effect of displacing labor. This is made clear by Table VII, which shows output per man per year for stripping and for all other types of mining.

TABLE VII.—OUTPUT PER MAN PER YEAR (NET TONS)

Year	Strip pits	All other types of mining
1931.....	1,708	407
1932.....	1,654	386
1933.....	1,458	440
1934.....	1,347	490
1935.....	1,268	488

Source: Compiled from data in United States Bureau of Mines, Minerals Yearbooks.

The foregoing table shows that the output per man per year for strip pit mining was about four times as large as output per man per year in the other types of mining for 1931 and 1932. In 1933 and 1934 the output per man per year fell to about three times the output in other types of mining. If culm bank and washery operations were subtracted from the data above on all other types of mining, the excess of output per man per year obtained from strip pit mining would appear even larger by comparison.

Surface mining thus contributed a large percentage of the total anthracite production in Northumberland and Schuylkill counties. That it also decreased the amount of labor used, and that it was one of the prime causes for the relatively larger declines in employment in Northumberland and Schuylkill counties as compared with the northern counties, is unquestionable. It is significant that the highest concentration of bootlegging is found in the regions where underground mines were largely abandoned in favor of surface operations—that is, around Shamokin and Pottsville.

CHAPTER IV. NON-MINING OCCUPATIONS, W.P.A. AND RELIEF IN THE ANTHRACITE COMMUNITIES

I. NON-MINING OCCUPATIONS

In the last chapter the effects of the decline of production and employment in the anthracite industry upon the community were examined. Since people who lose jobs in one industry commonly seek employment in others, some study of alternative employment opportunities in the anthracite community is desirable.

Although anthracite mining is the backbone industry of the four counties under consideration, namely, Northumberland, Schuylkill, Luzerne and Lackawanna counties, it carries with it certain ancillary industries. In addition, certain other industries are to be found in several places in the region. Of the total number of gainfully employed persons in the four counties, 38 per cent are in mining, 36 per cent in the service occupations, 23 per cent in other industrial enterprises, and 3 per cent in agriculture.*

The service occupations include the wholesale and retail trades, transportation and communications, and all public professional and domestic service occupations. The percentage in the service occupations is approximately the same as it is for the rural section of the United States (regions with population less than 25,000 per township), which shows a ratio of one service worker for two productive workers.

Of the total number of persons gainfully employed in Pennsylvania as a whole, the percentage engaged in agriculture is twice as great as the percentage employed in agriculture in the above four counties taken alone. The land in the coal counties is hilly and rolling, and is too steep and stony for extensive cultivation. Northumberland county alone reaches the percentage employed in agriculture prevailing in the state as a whole.

Next to mining, the service occupations employ the largest number of people. A miner losing his customary job hence finds his best opportunity for new employment in the service industries, not only because these industries utilize so many people, but also because of the diversity of jobs involved, most of which do not require special skill or training. The greatest diversification of industries in the anthracite region is found in the three northern cities, namely, Scranton, Wilkes-Barre and Hazleton. Of these the first is in Lackawanna county, the other two being in Luzerne. In the three cities, only 24 per cent of the total persons gainfully employed are in mining, compared with 38 per cent of the four counties as a whole; 46 per cent of the gainfully employed in the same three cities are engaged

* See United States Census, 1930.

in service occupations, compared with 36 per cent for the four counties as a whole. Moreover, the percentage of those engaged in industrial occupations other than mining in the three large cities reaches almost 30 per cent, while in the four coal counties as a whole the total in other industrial occupations is only 23 per cent. Hence the greatest part of all the service and industrial occupations in the four counties is found in the two northern counties, Luzerne and Lackawanna.

The miner of Schuylkill or Northumberland county who is compelled to seek employment outside of mining therefore finds only very limited local opportunities open to him.

An examination of certain other data will bring out the contrasts between the two sets of counties still more clearly. In 1933 Luzerne county had 556 establishments working in 97 different industries; Lackawanna had 482 establishments in 94 different industries; in Northumberland county there were only 213 establishments, in 55 different industries; and in Schuylkill county 315 establishments, in 48 different industries. Thus there were about twice as many different industries in Luzerne and Lackawanna counties as there were in Schuylkill and Northumberland counties.* There are also more heavy industries in the northern counties than in Northumberland and Schuylkill counties. In consequence, relatively more women are working in industries other than mining in Northumberland and Schuylkill counties than in Luzerne and Lackawanna counties. In Schuylkill county about 66 per cent of those workers engaged in industries other than mining are women, while in Northumberland the percentage is 50. In all four counties, the majority of the industrial workers not engaged in mining are employed in the textile industries. The per cents range from about 65 in Lackawanna county to 87 in Schuylkill county. Finally, the percentage of the total non-mining industrial workers who are engaged in the metal industries is four times as great in Northumberland county as it is in Schuylkill, but it is eight and twenty-four times as great in Luzerne and Lackawanna counties, respectively, as in Schuylkill county.

The above discussion indicates that more employment opportunities were available in Luzerne and Lackawanna counties than in Schuylkill and Northumberland counties, chiefly because of the greater number and diversification of industries. This

* These data come from a source other than the data given thus far in this chapter. They are taken from the annual Report on Productive Industries of the Department of Internal Affairs of the Commonwealth of Pennsylvania. The coverage differs from the data of the United States Bureau of Census. Whereas the data of the United States Bureau of Census cover all occupations and give only establishments doing a business of \$5,000 and over, these data cover manufacturing industries of \$1,000 and over, including mining and excluding the building trades.

made recourse to the establishment of an illegal mining industry less necessary, from the point of view of the unemployed miners, in the northern fields than in the south.

II. W.P.A. AND RELIEF EXPENDITURES

The tremendous decline in employment and production of the mining industry, which had been the chief economic support of the coal counties, necessitated huge W.P.A. and relief grants. Table VIII gives a brief summary of the W.P.A. and relief expenditures during 1936, in the four coal counties under consideration.

TABLE VIII.—W.P.A. AND RELIEF IN 1936

	Schuylkill	Northumberland	Luzerne	Lackawanna	Total Pennsylvania
Average number of cases receiving relief	3,874	2,659	10,700	7,421	169,991
Average number of persons receiving relief	11,822	9,797	41,793	25,630	553,714
Per cent of population receiving relief	5.0	7.6	9.4	8.3	5.7
Average number of persons receiving W.P.A.	9,589	5,249	15,663	10,716	273,795
Per cent of population receiving W.P.A.	4.1	4.1	3.5	3.5	2.8
Total relief expenditures.....	1,230,718	943,332	4,065,823	2,516,645	63,443,715
Total W.P.A. earnings.....	6,979,700	3,876,916	11,532,175	7,852,419	185,423,333
Average direct relief per person, monthly	8.62	7.98	8.13	8.23	9.58
Average W.P.A. earnings per person, monthly	60.66	61.55	61.36	61.07	62.23

Source: Pennsylvania State Emergency Relief Board, and Works Progress Administration.

This table shows how large was the number of people in the four coal counties dependent upon W.P.A. and Relief Grants. In the four coal counties combined, 11.6 per cent of the population was either on relief or on W.P.A. in 1936.

Each direct and indirect beneficiary of relief is accounted for in the figures, since every person receiving relief is included. The total number of persons benefiting from W.P.A., however, is not indicated. The figures on W.P.A. cover only those directly employed on W.P.A. projects, and do not show the persons directly supported by those on W.P.A. But W.P.A. and relief are mutually exclusive, and for the most part the W.P.A. worker is the only member of his family employed. By assuming that the average number of persons in a W.P.A. worker's family is the same as the average in the relief family, it can be estimated that about 20 per cent of the population in Lackawanna county, 23 per cent of the population in Luzerne county, 23 per cent of the population in Northumberland county and 18 per cent of the population in Schuylkill county are directly dependent either on direct relief or on W.P.A. for their livelihoods. These percentages are higher than the figures for the entire State, which show only 15 per cent of the population directly dependent upon relief

and W.P.A. If those dependent up C.C.C. and N.Y.A. were included the comparison would show an even higher relative proportion of the population dependent on government support in the coal counties.

In 1936, 39 million dollars were spent in the four coal counties on Relief and W.P.A. Some 33 per cent of this was apportioned to Northumberland and Schuylkill counties alone, which also have approximately 33 per cent of the total population of the four counties. But this Relief and W.P.A. appropriation for the four coal counties is 15.7 per cent of the entire State appropriation, whereas the ratio of the population of these four coal counties to that of the whole State is 11.6—somewhat less.

Each person on direct relief receives an average of \$8.22 per month, while each W.P.A. worker earns an average of \$61.16 per month in the four coal counties. Assuming that the W.P.A. workers' earnings are used for the support of 3.53 persons (which is the average number of persons per relief family), each person sharing in the W.P.A. earnings of the four coal counties receives an average of \$17.33 per month. This is more than twice the average of the relief payments.

Relief and W.P.A. grants have been in the same proportion to population in Northumberland and Schuylkill counties, where bootlegging chiefly prevails, as in the other two coal counties. The development of bootlegging therefore cannot be attributed to any inadequacy in these grants as compared with similar grants elsewhere in the State. But it is clear that, for whatever reason, government aid was insufficient to prevent bootlegging.

III. SUMMARY. FACTORS CONTRIBUTING TO BOOTLEGGING

The three previous chapters have attempted to show why bootlegging developed or could develop in Northumberland and Schuylkill counties, and why it did not appear in Luzerne and Lackawanna counties.

None of the factors listed have by themselves been the sole direct cause of bootlegging, but they have all played some part.

First, the geological formations and the general lie of the land are far more favorable to bootlegging in Northumberland and Schuylkill counties than they are in Luzerne and Lackawanna. In the Southern fields the coal veins roll and pitch sharply, and there are innumerable surface outcrops which can be worked to a certain depth by rather primitive methods. Moreover, most of these outcrops are on remote mountainsides well away from highways and settlements, and screened by bushes and small timber. In the Eastern Middle and Northern fields the coal beds are typically flatter, do not outcrop so frequently, and are hence less easily worked from the surface. These various differences did not *cause* the development of boot-

legging in the Southern fields, of course, but they provided a physical setting which made bootlegging far more likely to occur there, when unemployment and general economic pressure on the bulk of the local population became severe.

Second, the closing of many collieries by the larger companies in the Southern field, the relatively large amount of surface mining in this field, the smaller opportunities for employment in industries other than mining because of the lack of cities with diversified industries, and the general condonation of bootlegging in the Southern field by local officials, businessmen, and the clergy, all contributed to the actual development of bootlegging in Northumberland Schuylkill counties. In the Northern counties, Luzerne and Lackawanna, the declines in production of coal were as heavy as in the other two counties, and the people of these counties were far from prosperous. The factors which contributed to bootlegging in the Southern counties were mitigated somewhat in the Northern counties, however, and therefore did not so harshly aggravate the unemployment problem there. The fact that employment in Luzerne and Lackawanna did not decline faster than production, as it did in Northumberland and Schuylkill counties (Table II); the fact that many collieries were leased to small independent companies, a practice which prevented as great a concentration of collieries as in the Southern field; the fact that surface mining was less actively developed; the fact that there are three large cities with diversified industries in which a majority of the people live; the fact that there were a greater number of heavier industries—all these conditions helped to alleviate the serious mining unemployment in the northern counties, and hence helped to prevent the development of extensive bootlegging there. In Northumberland and Schuylkill counties the opposite conditions prevailed, and the economic pressures which finally culminated in widespread bootlegging were correspondingly more severe.

CHAPTER V. BOOTLEG HOLES AND THE BOOTLEG MINER

I. THE BOOTLEG HOLES: NUMBER, OUTPUT, AND NUMBER EMPLOYED

The bootleg industry as it is conducted today, or the illegal mining and sale of anthracite coal, falls into four main divisions. The first step in the industry is the extraction of run of the mine coal from holes dug on coal lands belonging to others. These holes are usually worked by three to five men, of whom at least one is a certified anthracite miner. The second step usually consists of the sale of run of the mine coal to a trucker, who carries the coal directly from the hole on the mountain to a bootleg breaker. In many cases the truck is owned by the bootleg breaker operator, although in a majority of cases the truck is owned by the trucker himself. At the bootleg breaker the run of the mine coal is broken, cleaned and sized. This constitutes the third step in the production of bootleg coal. Finally, the prepared coal is sold to truckers who deliver the coal directly to the ultimate consumer. In a few instances, however, it has been found that coal is both extracted and prepared at the bootleg hole, placed in bags, and then sold direct to a trucker who delivers to the consumer.

The present chapter is concerned with the first process in the production of bootleg coal, namely, the extraction of coal from the bootleg holes. The figures concerning bootleg holes that are given in this chapter were obtained from a survey and census conducted by the Commission in the spring and early summer of 1937. The figures were secured through direct questioning of men working in 1,129 bootleg holes in Northumberland, Schuylkill, Columbia, and Dauphin counties. These holes employed a total of 4,080 men, 50 per cent of whom have been personally questioned; 586 other holes have been surveyed but not investigated. It is also estimated that there are 250 holes located in those areas which were not reached by the survey. The probable total number of bootleg holes is hence about 1,965. It must be understood, however, that the bootleg mining situation changes continuously. Men are constantly moving in and out of the bootleg holes. They leave them when the demand for coal is low, or when employment opportunities increase, or when there is little available coal left in their holes. They also leave when the pressure from the coal companies and police becomes too heavy. Thus it is not unusual for a bootlegger to spend part of the year in a hole, part of it perhaps working at some odd job, and the rest of it looking for another hole. Because of this everchanging situation, the actual number of holes being worked at any one time varies from week to week. The figures

given below, on the number of bootleg holes and miners, were obtained in the months of May and June, 1937. The data for these months were then adjusted for seasonal factors, however; and in addition, estimates of the average figures for twelve-month periods were secured from the bootleggers. More than half of all the holes thought to be active at present were covered directly. Despite the continual flux in the bootleg industry, the results obtained by this census are therefore believed to give a representative and reliable picture of the situation in general. An explanation of the statistical methods used will be found in the Appendix.

As stated above, 1,129 bootleg holes were directly covered, or 57 per cent of the estimated total of 1,965 active holes now in existence. In these 1,129 holes, an average of 3.6 men were working in each hole. This makes an estimated grand total of 7,074 men working in all bootleg holes. The latter figure does not include those engaged in bootleg breakers or in the trucking of bootleg coal. In addition, it is estimated that there are at least 2,000 men, women and children picking coal from the refuse banks in the Southern fields, mainly for their own use. Some of this coal, however, is now finding its way into commercial markets. The total number of persons taking coal from bootleg holes and refuse banks in the Southern and Middle Western fields is therefore at least 9,000. Since the average bootlegger is a member of a family of 5 persons, and since there are about 1,965 holes, employing on the average 3.6 men per hole, it can be estimated that about 31,000 persons are chiefly dependent upon the bootleg holes for their livelihoods.

The average bootleg hole produces 32.5 tons of coal per week. This average figure was obtained by weighting the actual weekly output of the holes according to the length of time the holes had been in operation, in order to obtain a figure indicative of average production over a period of time. Table IX presents a summary of the distribution of the number of holes (in per cents) accord-

TABLE IX.—TONS PRODUCED PER WEEK PER HOLE

Tons produced per week per hole	Average weeks of production	No. of holes in each class as per cent of total
Under 6	21.3	2.1
6 and under 12.....	29.6	12.3
12 and under 18.....	39.2	15.4
18 and under 24.....	26.2	16.6
24 and under 30.....	33.5	11.1
30 and under 36.....	42.0	10.7
36 and under 42.....	47.3	11.1
42 and under 48.....	32.4	6.6
48 and under 54.....	64.4	4.3
54 and under 66.....	49.0	4.3
66 and under 84.....	55.2	3.6
84 and over	23.4	1.9
Total		100.0

ing to size of production, together with the average number of weeks each hole in each class has been in production.

The average output, as computed from the detailed figures lying behind the above table, is 32.5 tons per week per hole. After allowing for the loss of work entailed by dead work in the hole, rain, snow and other physical factors which curtail coal production, and also allowing for seasonal fluctuations, it is estimated that total annual bootleg production from all bootleg holes in the last year was about 2,300,000 tons. The daily output per bootlegger was 1.3 tons, whereas the output per day per man in legal mines averaged 2.4 tons for the years 1930 to 1934.* To this annual bootleg hole output, however, should also be added some 100,000 tons a year which is produced illegally from the culm and refuse banks. The estimated total annual illegal output of anthracite is therefore now about 2,400,000 tons.

To check this result, illegal production was also estimated by an entirely different statistical method based on data given for actual production by bootleggers in the months of January, May, and June, and with allowance for the seasonal variations obtained from the data of the United States Bureau of Mines on legitimate anthracite production. A figure for total annual bootleg production was then obtained which is within 6 per cent of the first figure. Thus, total annual bootleg production as estimated by two different methods lay between 2,400,000 and 2,550,000 tons in the past year.

Estimating that bootlegging has now dropped about 15 per cent below its peak of 1935, the total annual output of bootleg coal in 1935 was about 2,900,000 tons. This was roughly 5 per cent of the total legitimate output for that year.†

The average price that the bootleg miners get for each ton of coal sold is \$2.65. During the winter months they receive a higher price; for example, the average was \$3.15 per ton during the month of January, 1937. The gross amount of money received by bootleg miners per year is about \$6,000,000, estimating the annual bootleg hole output to be 2,300,000 tons. When this figure was checked against a different set of figures on earnings, expenses, and length of time of operation throughout the year, the two results were found to coincide. The amount realized by breaker operators, and additional income received by holes that sell sized coal and gross sales realization from consumers, will be discussed in the next chapter.

In some districts, such as Mahanoy City, the coal is usually

* This estimate of output per man, and the one given above for the total number of miners in the bootleg holes, are almost identical with the estimates obtained by the coal companies in a survey they conducted in February and March, 1937.

† See Appendix C for details of methods of calculation.

broken, sized, and prepared for the consumer directly at the hole; 7 per cent of the total bootleg hole tonnage is sold in this way to truckers whose destination is the consumer rather than the bootleg breaker. Of the rest of the coal mined, 47 per cent is sold to truckers who own their own trucks and who deliver to the bootleg breakers, 42 per cent is sold directly to the bootleg breakers and is transported in trucks owned by these bootleg breakers, and the remaining 4 per cent is run of the mine coal sold to farmers and local consumer.

The summary figures on the distribution of the total bootleg coal output are as follows, on an annual basis, in tons (figures representative of 1936-1937):

Bootleg hole tonnage:

Sold to truckers owning their own trucks who deliver to bootleg breakers (47%).....	1,085,000
Sold directly to bootleg breakers (42%).....	950,000
Sold elsewhere (11%).....	265,000

Total.....	2,300,000
------------	-----------

Culm and refuse bank tonnage.....	100,000
-----------------------------------	---------

Aggregate bootleg output.....	2,400,000
-------------------------------	-----------

II. THE BOOTLEG HOLES: EARNINGS, EXPENSES, LENGTH OF LIFE

The average weekly earnings of the bootleg miners, weighted for the length of time the miners had been working in their holes, is \$19.70. As shown in Table X, however, 50 per cent of the bootleggers earn less than \$16.85 per week. Earnings vary from one man making less than \$1.00 per week to one man making \$79.00 per week. The middle 50 per cent of the bootleggers earn between \$11.83 and \$21.05 per week.

TABLE X.—WEEKLY EARNINGS OF BOOTLEG MINERS

Earnings per week per man (in dollars)	Average weeks of production	No. of men in each class as per cent of total
Under 3	17.1	.6
3 and under 6.....	15.6	6.9
6 and under 9.....	28.5	9.3
9 and under 12.....	24.0	8.7
12 and under 15.....	30.5	14.0
15 and under 18.....	40.6	17.0
18 and under 21.....	46.9	18.4
21 and under 27.....	51.0	11.4
27 and under 33.....	54.8	7.8
33 and under 45.....	43.4	3.4
45 and under 57.....	27.1	1.8
57 and under 69.....	31.8	.6
69 and over.....	84.0	.1
Total.....		100.0

The above figures do not include those few persons who are employed in the holes on a wage basis. Most of the holes are conducted on a partnership or share-all basis, and only 5.2 per

cent of the men in the holes are paid a stipulated wage. The average earnings of these wage-receivers amount to \$12.50 per week. Some 96.6 per cent of the holes are conducted on a partnership basis, and only 3.4 per cent are run by individuals who hire people to work for them. Table X hence covers the earnings of those employed in 96.6 per cent of the total of all holes.

Weekly expenses per mine amount to \$13.00 on the average, exclusive of the small amount of wages just referred to. Expenses include power, dynamite, timber, and other miscellaneous costs. The weekly expenses for the middle 50 per cent of the holes fall between \$7.00 and \$16.00.

In 50 per cent of the cases, the initial investment made to start the bootleg hole was under \$72, but in more elaborate holes higher amounts were invested. The average is \$119.00. A few holes were found in which the reported investment was as great as \$1,000. But the bootleggers at these holes had either bought trucks, or had machinery for sizing the coal, and their initial investment is hence really not comparable to those of the other bootleg holes. In some cases investment costs were also high because of the installation of pumping equipment, ventilating apparatus, trucks, buggies, etc. About 15 per cent of the holes fall in this latter category.

The summary balance sheet of the average bootleg hole was as follows on a weekly basis, *to the nearest dollar* :*

Gross receipts (32.5 tons at \$2.65 per ton).....	\$86.00
Total expenses (including pay rolls, amounting to 5.2% of \$12.50 × 3.6 men)	16.00
Profits (shared among 3.4 men, since 0.2 men were paid on wage basis)	\$70.00
Profits per man ($\$70 \div 3.4$)	20.00

The ever-changing location of the bootleg holes becomes clearly apparent upon an examination of the length of time of operation of the holes. By length of time of operation of bootleg holes is meant the length of time the group found at the hole had been engaged there, when questioned, in both dead work and the extraction of coal. The average length of time of operation as defined above, at the time of the survey, was approximately 7½ months. When the bootleggers were questioned concerning the life-time of their previous holes, it was found that the average age per bootleg hole was about ten months. More significant, however, is the fact that although the average length of operation of currently existing holes had

* The computation of these averages is explained in Appendix C. The final figure for profits as thus calculated is identical to the nearest dollar with the figure for profits which is given in the text above, and which was computed directly from the bootleg miners' answers to questionnaires.

been about $7\frac{1}{2}$ months, 50 per cent of the holes had been operating less than $3\frac{1}{2}$ months. This indicates the short duration of operation of many of the holes. It was also found that 14 per cent of the holes had been in operation for more than one year, and 7 per cent two years or more. The distribution is given in Table XI.

TABLE XI.—MONTHS OF OPERATION OF BOOTLEG HOLES

Months of operation	Number of bootleg holes in each class as per cent of total
Under 1	29.3
1 and under 2.....	9.4
2 and under 3.....	9.2
3 and under 6.....	14.7
6 and under 10.....	13.6
10 and under 14.....	9.5
14 and under 20.....	5.9
20 and under 28.....	3.5
28 and under 44.....	3.4
44 and over	1.5
Total.....	100.0

The unemployed miner, because he has lived in the anthracite region for many years, often has a very accurate knowledge of the location of coal outcroppings, breaches, and places where the veins run directly beneath the surface. Despite this, however, in most cases the bootleggers find it necessary to do a good deal of digging and blasting, or dead work, before the coal is reached. It has been found that with an average of $3\frac{1}{2}$ men working a hole, it takes about seven weeks of dead work on the average, before coal can be extracted.

TABLE XII.—WEEKS OF DEAD WORK IN BOOTLEG HOLES

Dead work (weeks)	Number of holes in each class as per cent of total
0 and under 2.4.....	25
2.4 and under 4.6.....	25
4.6 and under 9.1.....	25
9.1 and over.....	25
Total.....	100

In order to determine the exact location of the bootleg holes, the names of the collieries and the owners of the properties were listed. Complete information on this was collected for Northumberland and Columbia counties. For Northumberland county, it was found that 80 per cent of the bootleg holes were located on abandoned collieries, 12 per cent on active collieries, and the remaining 8 per cent on virgin coal lands. Most of the

bootleg holes were concentrated in and around abandoned collieries in which the bootleg miners involved had formerly worked.

The bootlegger usually pursues the same working habits at his hole that he was accustomed to at the legal mine. He starts his work early in the morning and finishes in the middle of the afternoon. There are naturally, however, many deviations from the usual procedure. On the average it was found that the bootleggers work eight hours a day and five days per week, thus putting in a forty-hour week.

The bootlegger works under sub-standard conditions compared to those in the legal mines. He does not have at his disposal the many safety devices used in legal collieries. The lack of safety in bootleg holes has been deplored by all concerned. The Pennsylvania Bureau of Mines has compiled a record of fatalities which shows that since the inception of bootleg mining there have been about 100 fatalities. In 1935, there were 28 fatalities in bootleg holes, and in 1936 there were 32 such fatalities. When this is compared to production per fatality in legal mines, it appears that in 1935 there was one fatality per 193,079 tons produced in legal mines, and one fatality per 103,571 tons in bootleg holes. In 1936, there was one fatality per 225,158 tons in legal mining and one fatality per 75,000 tons in bootleg holes—three times as high a fatality rate.

III. THE BOOTLEG MINER: PREVIOUS OCCUPATION, RECEIPT OF GOVERNMENT HELP, AGE, CITIZENSHIP, EDUCATION

Of vital concern to an understanding of the bootleg mining situation is the question of who the bootleggers are, and of their background. It has been found that practically all of the bootleggers are men who have spent their lives in the anthracite region. Over 99½ per cent of the bootleggers have been residing in the region, except for temporary absences to seek other employment, for at least the past ten years. Among this group are included a small number of farmers whose homes are located in the coal counties, and who along with the unemployed miners have entered bootlegging.

The bootleg miners are for the most part either former miners or sons of miners. Some 63 per cent of the total number of bootleggers were formerly engaged in legal mining. Furthermore, 72 per cent of those bootleg miners who were at one time employed at a legal colliery, or 45 per cent of all the bootleg miners, have anthracite miners' certificates. Of the bootleg miners who have never worked in a legal mine, 19 per cent are sons of miners who have never had any kind of previous employment. These are the people who in previous generations would have started at an early age to work as slate pickers in

the breakers, thereafter gradually moving underground as they gained age and experience to work as door tenders, mule drivers, laborers, and finally becoming contract miners. With the closing of the collieries, however, this present generation of miners' sons found the customary path of employment of their fathers practically closed to them. The remaining 18 per cent of the total bootleg miners are men who had never worked in a legal mine, but who had had customary occupations other than mining.

For the 63 per cent of the bootleg miners who had been employed in a legal mine at some time during their lives, the average length of such service was found to be 17 years. The range was from one-half year to over 50 years of service. The middle 50 per cent of the miners questioned had been employed in legal mines from 7 to 25 years, as is shown in Table XIII.

TABLE XIII.—LENGTH OF SERVICE IN LEGAL COLLIERIES

Years of service	Number men in each class as per cent of total
Under 7.0	25
7.0 and under 15.7.....	25
15.7 and under 25.3.....	25
25.3 and over.....	25
Total.....	100

Of all the bootleg miners who had worked at some time in a legal mine, 54 per cent had been discharged from their jobs at the collieries within the past four years, 44 per cent had left within the past four to twelve years, and the remaining 2 per cent had not worked at a legal colliery in the last twelve years. These figures are consistent with the fact that bootlegging became widespread after 1932, when the closing of collieries became acute, although they also indicate that unemployment due to the shutting of collieries gave rise to some bootlegging even before that date. Thus the spread of bootlegging was in direct proportion to the closing of the collieries, although it lagged behind the increase in the number of unemployed miners. This is further brought out by Table XIV, which shows that the majority of bootleggers began bootlegging in 1934, 1935 or 1936. They waited two years after the loss of their previous customary occupation, on the average, before starting to bootleg. It was also found that there has recently been a tendency for this interval to decrease. After 1934 the practice and condonation of bootlegging became so widespread that soon after a miner had lost his regular job he entered bootlegging. The fact that even so large a fraction as 16.5 per cent entered bootlegging in 1932 or earlier is explained by the protracted decline in legal employment in the anthracite industry after 1926.

TABLE XIV.—YEAR WHEN BOOTLEG MINERS ENTERED BOOTLEGGING

Year	Number of bootleg miners in each group as per cent of total
1929 and earlier.....	1.3
1930	2.8
1931	4.4
1932	8.0
1933	11.9
1934	15.4
1935	20.5
1936	18.7
1937 (first 6 months).....	17.0
Total.....	100.0

Another set of figures also reveals the relationship between the shutting of collieries and the increase in bootlegging. The average length of time the bootleg miners have been engaged in bootlegging was 28 months. The middle 50 per cent of the men had been bootleggers between ten and forty months at the time of questioning.

Although a rigorous study of the destinations and length of time spent by unemployed miners in looking for employment outside of the anthracite coal region after the loss of their customary occupation was not made, it was ascertained that 14 per cent of the total number of present bootleg miners had actually left the coal region at one time or another to find work elsewhere. Most of these men visited at least two large cities in the country, and spent about three months in each place. During this interval between loss of customary occupation and the beginning of independent mining, an interval which was found on the average to be 2 years, 9 per cent of the total bootleggers did find jobs in private industry. All of these jobs, however, were classified as temporary odd jobs, and the men finally came back to the anthracite regions. There is no evidence to indicate that any large number secured permanent employment in other parts of the country.

Of the total number of bootleg miners, 64 per cent have applied at some time for either relief or W.P.A.; 54 per cent were accepted, so that at one time or other these 54 per cent were either on W.P.A. or relief or both; 10 per cent were refused any kind of government aid; 3.6 per cent of all bootleggers are at present also engaged on government emergency projects, while 14.4 per cent of them are now receiving relief. In Table XV, a complete summary classification is presented.

One per cent of all the bootleggers were employed in private industry at the time of the survey.

The composition of the bootleg-miner population is demon-

TABLE XV.—BOOTLEG MINERS ON RELIEF AND W.P.A.

Status	Number of bootleggers as per cent of total
On Relief:	
Now	14.4
Formerly	34.9
Total.....	49.3*
On W.P.A. (or other gov- ernment project):	
Now	3.6
Formerly	17.6
Total.....	21.2*

* The sum of the totals on relief and W.P.A. is greater than the 54 per cent of the total bootleggers who were accepted for government aid, since there is overlapping between the two classifications. Some men received both W.P.A. and relief.

strated by a study of the ages of the various groups of men who have entered bootlegging. For this purpose, the bootleg miners have been classified into categories consisting of those who have previously worked in legal collieries, those who have never worked in a legal mine, and those who have never worked at all. While the average age of all bootleggers is 32 years, the average age of those who have never worked in a legal mine is 21 years, and the average age of those who have never worked at all is 20 years. From this it can be seen that most of the bootleggers who had not previously worked in a mine had never had any previous employment at all.

Table XVI, which gives the actual age distribution of all the bootleg miners, shows clearly the large number of youths in bootlegging.

TABLE XVI.—AGES OF BOOTLEG MINERS

Age (in years)	Number of men as per cent of total
13 and under 17.....	2.1
17 and under 21.....	17.5
21 and under 25.....	19.2
25 and under 29.....	13.3
29 and under 33.....	9.3
33 and under 37.....	7.2
37 and under 41.....	6.2
41 and under 45.....	5.4
45 and under 49.....	5.0
49 and under 53.....	5.3
53 and under 57.....	4.4
57 and under 61.....	2.8
61 and under 65.....	1.6
65 and over.....	.7
Total.....	100.0

It can be seen that 50 per cent of all the bootleg miners were under 28 years of age. Most of those not falling in the category of youths who had never worked previously are former miners.

An examination of the marital status of the bootleg miners reveals that of the total, 56 per cent are single, 42 per cent are married, and 2 per cent are widowed. The number who are divorced is less than one per cent.

It was also found that the average number of persons in a bootleg miner's family is 5. In this average bootleg family of five persons, 1.6 of these persons are employed either at bootlegging, private industry, or on government emergency projects. Only 0.1 of a person, however, is employed on the government projects, and 0.2 in private industry. The remaining 1.3 persons are employed in bootlegging. Hence the great majority of the people in bootleg families are solely dependent upon bootlegging for their livelihoods.

Some 83 per cent of the bootleg miners are native born citizens of the United States; 14 per cent are naturalized citizens, the remaining 3 per cent being aliens. As a check, these figures were compared with the United States Census figures for Schuylkill and Northumberland counties. It was found that similar proportions prevail in the total populations of these counties. According to the United States Census for 1930, 89 per cent of the total population of Schuylkill and Northumberland counties combined are native born, while 11 per cent of the population are foreign born. In other words, there has been no marked drift of aliens into bootlegging.

With respect to education, the bootleg miners have received barely a grammar school education. More than 50 per cent of them had left school before the eighth grade. This is traditional procedure among the miners, however, who learn what they know chiefly not in school or from books, but in the breakers and later in the mines. Even at present, when the lack of employment opportunities is tending to increase the number of students and to delay the age at which students leave school, educational opportunities in the anthracite communities are no more utilized by the miners than they were prior to the closing of the collieries. The young men found in the bootleg holes invariably stated that they left school because they were forced to provide for themselves and their families, even though the only available source of livelihood was bootlegging. It should be noted, however, that 25 per cent of the bootleg miners have attended high school, although few of them completed the entire course. The number who have attended college is less than one per cent.

Some 84 per cent of the bootleggers belong to some union or other. Of the total number of bootleg miners, 60 per cent are

or were formerly members of the United Mine Workers of America. This indicates that practically all of the bootleg miners who formerly worked in legal mines (or 63 per cent of all bootleg miners) belonged to this union; 61 per cent also belong to the Independent Miners and Truckers Association, while one per cent are members of other unions. These latter are men whose original occupations were not mining, and who belonged to the guilds of their original crafts.

CHAPTER VI. BOOTLEG BREAKERS, BREAKER WORKERS AND BOOTLEG TRUCKING

I. BOOTLEG BREAKERS: NUMBER, OUTPUT, COST, LENGTH OF LIFE

After the run of the mine coal is extracted from the bootleg holes and hauled by trucks off the mountain, it is brought to the bootleg breaker for cleaning, sizing, and general preparation for the consumer.

Bootleg breakers are usually ingenious devices, of widely varying capacities, which are constructed in the main from second-hand materials. They range from primitive hand crushers and simple shakers to quite complex mechanisms. In these latter the coal is sent through two sets of revolving teeth which crush the large chunks. The coal is then conveyed on a belt to moving screens which sort the coal into various sizes, dropping each size into a bin located directly beneath the screens. A gasoline motor is usually used for power.

The organization and management of the bootlegging breakers are quite unlike those of the bootleg holes. In the bootleg hole, a group of miners constituting a partnership enters the hole, prepares it for the extraction of coal, and then divides the net receipts among the partners. The bootleg miner is hence usually his own employer. The breaker operator, on the other hand, is generally an employer in the usual sense of the word. A person usually enters the bootleg breaker business by constructing a breaker upon land that he owns or leases, and then hiring men to work in his breaker. Although the expense involved in the original construction of the breaker commonly involves a larger investment of capital than the investment in a bootleg hole, the return to the breaker operator far exceeds the return to the bootleg miner. An additional difference between the bootleg holes and the breakers is the fact that while the business of the holes involves only the sale of coal, breaker transactions involve both buying and selling. For these reasons most of the breakers are run as business enterprises in which an individual or a few partners hire help for a stipulated wage rate, whereas the bootleg holes are better adapted to operation on a partnership basis.

The data presented below concerning bootleg breakers are based upon the information rendered by 157 breakers which employed 591 men, an average of 3.8 men per breaker. The Commission's enumerators also mapped the locations of 40 other breakers in the regions covered, which were not investigated in detail; and it is estimated that there are 145 additional breakers in the regions not covered directly by the Commission's survey.

The estimated total number of bootleg breakers is hence 342.* The breakers investigated in detail hence constitute 42 per cent of the estimated total.

The total number of men engaged in the bootleg breakers is estimated at 1,300. Since the average number of persons in each of the families of these bootleg breaker workers is estimated at 5, the total number of persons directly dependent upon the business of the breakers for their livelihoods is about 5,700, after allowing for the fact that some members of the families are employed in private industry and on emergency projects.

The average number of tons bought per bootleg breaker per week is 119, and the average number of sized tons sold per week is 112. Since it is estimated that there are 342 bootleg breakers operating, and allowing for shutdowns due to physical factors such as weather conditions and machinery repairs, the annual output of the bootleg breakers is estimated at 1,900,000 tons of sized coal.†

Now in the preceding chapter, it was calculated from questionnaires answered by those in bootleg holes that annual hole production was 2,300,000 tons. In the last paragraph above, on the basis of a different set of questionnaires answered by a different set of people, annual bootleg breaker production was calculated to be 1,900,000 tons. These two figures obtained from two different sources, appear to be contradictory, but they are actually consistent and substantially check with each other, as follows. First, to the 1,900,000 tons produced annually by the bootleg breakers some 150,000 tons, or about 7 per cent of the coal bought by bootleg breakers, should be added to cover the loss of the very small steam sizes and other wastes in the process of sizing and cleaning itself. This makes the total tonnage bought by the bootleg breakers some 2,050,000 tons. Second, it is estimated that 250,000 tons are sold directly to consumers from the bootleg holes. Most of this coal is sized and prepared at breakers attached to the holes, and therefore never reaches the bootleg breakers. If this tonnage is added to the tonnage bought by the bootleg breakers, the two independently obtained production figures for total bootleg production coincide at 2,300,000 tons. The figures given above can be therefore summarized as follows, on an annual basis, in tons (figures representative of 1936-37):

* This figure was obtained as follows: (1) Every bootleg breaker and every bootleg hole in Northumberland County was investigated in detail; (2) in Northumberland, the ratio of number of holes to number of breakers was 6 to 1; (3) the Commission's enumerators estimated the total number of bootleg holes in Schuylkill County, applied to this number the 6 to 1 ratio, and thus estimated the number of bootleg breakers in Schuylkill; (4) the sum of items (1) and (3) was 342.

† See Appendix C for details of calculation.

Bootleg breaker output.....	1,900,000
Bootleg breaker loss in process, etc.....	150,000
Bootleg hole output sold to others than bootleg breakers.....	250,000
Total bootleg hole output.....	2,300,000

Table XVII gives the distribution of bootleg breaker operations according to size of breaker by tons bought and sold.

TABLE XVII.—TONS OF COAL BOUGHT AND SOLD PER WEEK

Tons per week	Coal bought by breakers in each class (number of breakers as per cent of total)	Coal sold by breakers in each class (number of breakers as per cent of total)
Under 18	7.0	6.3
18 and under 36.....	14.7	17.4
36 and under 54.....	18.2	19.6
54 and under 90.....	16.1	16.1
90 and under 126.....	17.4	14.0
126 and under 180.....	8.4	9.1
180 and under 234.....	8.4	8.4
234 and under 306.....	2.8	2.8
306 and under 396.....	.7	2.1
396 and under 480.....	4.2	2.1
480 and over.....	2.1	2.1
Total.....	100.0	100.0

The price that a bootleg breaker operator pays for each ton of coal bought from an independent trucker, averaged through the year, is \$3.40. The average price he pays for each ton of coal bought directly at the hole by his own trucker is \$2.65. Of the total tonnage, 47 per cent is bought at the holes and the remaining 53 per cent from independent truckers. The weighted average price paid per ton is hence \$3.05. The average price received by the breaker operator from truckers who deliver to the final consumer is \$4.35 per ton. At 1,900,000 tons per year, the gross annual receipts of the breaker operators are hence \$8,265,000. The prices received for the various sizes average \$2, \$4, \$5, and \$6.50 per ton for buckwheat, pea, nut, and egg respectively. These sale prices fluctuate with seasonal demand. Most of the coal sold is in the larger sizes.

Of the \$8,265,000 total annual breaker receipts, \$6,206,000 was used to pay for unbroken run-of-the-mine coal; \$2,516,000 of this went to the bootleggers at the hole, the other \$3,690,000 going to independent truckers. The latter in turn paid \$2,876,000 to the bootleggers at the holes. The total payment accruing to the bootleggers at the holes was therefore \$5,392,000, or \$2.65 per ton (as stated above) for the 2,035,000 tons reaching the bootleg breakers. The difference between the sum of \$6,000,000, estimated in the previous chapter to accrue annually to all the bootleg miners, and the figure of \$5,392,000 given in this paragraph, is accounted for by the money received by bootleg miners for sized and unsized coal sold directly to the ultimate consumer and to truckers delivering directly to the ultimate consumer,

without going through the independent breakers. For sized coal sold by holes with breakers there is an additional income to the above difference which amounts to roughly \$600,000.

The establishment of a bootleg breaker involves an investment of money which is substantial for an illegal enterprise. The average amount spent in building each breaker, together with the cost of later improvements, is \$815.00. This average, however, is biased by the existence of a few breakers which cost over \$5,000. For the great majority of the breakers, the costs lie fairly close to an average of \$382. The actual range of investments in the breakers, for the middle 50 per cent of the operators, is from \$150 to \$867 per breaker. It is interesting to note that 16 per cent of the operators invested from \$1,100 to \$5,400, and that 2 per cent invested from \$5,400 to \$7,200. Table XVIII presents the cost of the original investment plus improvements of bootleg breakers.

TABLE XVIII.—COST OF ORIGINAL INVESTMENT AND IMPROVEMENTS IN BOOTLEG BREAKERS

Investment and improvements (in dollars)	Number of breakers in each group as per cent of total
Under \$50.....	10.7
50 and under 150.....	14.3
150 and under 300.....	18.9
300 and under 500.....	14.8
500 and under 700.....	11.3
700 and under 900.....	6.0
900 and under 1,100.....	5.4
1,100 and under 1,500.....	3.6
1,500 and under 1,900.....	4.8
1,900 and under 2,300.....	1.8
2,300 and under 3,100.....	3.0
3,100 and under 5,400.....	2.4
5,400 and over.....	3.0
Total.....	100.0

The breakers questioned have been in operation on an average of 22.8 months. It is interesting to compare this figure with that for the length of time of operation of the bootleg holes. In the preceding chapter it was shown that the average life-span of any one bootleg hole is only 7.5 months. Moreover, 50 per cent of the holes examined had been in operation less than 3.5 months. Both figures, of course, are considerably below the figure for the length of time the breakers have been operating. The explanation of this difference is obvious enough. The bootleg breakers are physically stationary business enterprises, and represent a considerable investment of money. Having once been established, the operations of a breaker are continuous practically throughout the year. Hence the life of a breaker is

not automatically brought to an end by the exhaustion of the readily available coal in any one bootleg hole. The breaker may continue to function as long as any bootleg holes at all are active in the adjacent territory. The actual distribution of the length of time of operation of bootleg breakers is given in Table XIX.

TABLE XIX.—LENGTH OF TIME OF OPERATION OF BOOTLEG BREAKERS

Time of operation (in months)	Number of breakers in each group as per cent of total
Under 1.5	7.0
1.5 and under 4.5.....	5.1
4.5 and under 7.5.....	7.0
7.5 and under 10.5.....	8.9
10.5 and under 13.5.....	10.1
13.5 and under 22.5.....	13.3
22.5 and under 25.5.....	15.1
25.5 and under 34.5.....	7.0
34.5 and under 43.5.....	13.8
43.5 and under 52.5.....	9.5
52.5 and over.....	3.2
Total.....	100.0

II. BOOTLEG BREAKERS: WAGES, PROFITS, EARNINGS, EXPENSES

Because of the manner in which bootleg breakers are conducted, it has been found necessary to divide the men working in the breakers into two classes. In one class are the men who share in the profits of the business, and whose earnings are therefore relatively high. In the other class are those men who are paid on a wage basis, whose range of earnings is rather low, and whose average earnings are considerably below that of the other group.

TABLE XX.—WEEKLY EARNINGS OF BREAKER EMPLOYEES

Earnings (in dollars)	Number of men in each group as per cent of total
Under \$3 .....	.0
3 and under 6.....	2.9
6 and under 9.....	21.6
9 and under 12.....	15.2
12 and under 15.....	28.6
15 and under 18.....	12.8
18 and under 21.....	6.7
21 and under 27.....	5.5
27 and under 33.....	4.1
33 and under 39.....	.6
39 and over.....	2.0
Total.....	100.0

Of the average of 3.8 men per breaker, 2.4 or 63 per cent are employees, while the other 1.4 or 37 per cent are employers. The average weekly earnings of bootleg breaker employees, weighted by the length of time they had been working in the given breakers, is \$14. As is shown in Table XX, however, 50 per cent of the bootleggers earn less than \$13 per week. Earnings vary from one man making less than \$6 per week to 7 men making \$40 per week. The middle 50 per cent of the breaker employees earn between \$9 and \$16.50 per week.

Bootleg breakers are larger business units than bootleg holes. One would therefore expect that average weekly expenses for power, repairs, supplies, and rent would be higher in the breakers. Curiously enough, however, the average total expenses for these items work out about the same for the breakers as for the holes, and amount to \$13 per week. This is explained by the fact that the bootleg holes include among their supplies dynamite and timber, which are a substantial and continuing expense. This offsets the higher cost of power and rent in the breakers. The rent for the land upon which the breaker is erected, or for the breaker itself when it is leased, averages \$2.60 per week.

The bootleg breaker operator pays an average of \$3.05 for each ton of coal that he buys. Hence during a week the average operator pays \$363 for coal, since he buys 119 tons. It must be remembered that coal is bought from two sources. Some is bought directly at the bootleg holes; for this coal \$2.65 per ton is paid. Some is bought from independent truckers who have hauled the coal off the mountain from the bootleg holes to the breaker; for this, \$3.40 per ton is paid. The difference, amounting on the average to \$0.75 per ton, accrues to the independent truckers. Since of the total number of tons bought 53 per cent is obtained from truckers, the weighted average price paid per ton of coal is \$3.05. This figure checks with the one obtained by examining the total average weekly coal expense per breaker and the average number of tons bought per week.

On the average, the bootleg breaker operator has an expense account amounting to \$410 per week. This includes his total payroll cost, the cost of coal, and expenses for power, repairs, supplies, and rent. The average distribution of the total expenses is given in Table XXI.

Of the total average weekly expense per breaker, amounting to \$410, \$13 or 3.2 per cent is the cost for power, repairs, supplies, and rent, and \$363 or 88.5 per cent is for the payment for coal. This leaves \$34 or 8.3 per cent for the total payroll cost. The payroll amounts to approximately \$14 per week per employee.

On the average, the gross receipts of the bootleg breaker

TABLE XXI.—AVERAGE TOTAL WEEKLY EXPENSES PER BREAKER

Expenses (in dollars)	Number of breakers in each group as per cent of total
Under \$131.85.....	25
131.85 and under 245.31.....	25
245.31 and under 476.78.....	25
476.78 and over.....	25
Total.....	100

operator amount to \$487 per week. These receipts are produced by the sale of an average of 112 tons of sized coal per week, at an average price of \$4.35 per ton. Deducting the total expenses given above, the profits of the average bootleg breaker establishments are \$77 per week. In 71 per cent of the breakers one man alone operated the breaker, so that he received the total profits; in another 21 per cent there were two operators; in 7 per cent there were three; and in the remaining 1 per cent there were from four to five operators. The average profit of the average individual breaker operator is hence \$55 per week. Table XXII gives the percentage distribution of the profits of each of the breaker operators.

TABLE XXII.—WEEKLY PROFITS OF INDIVIDUAL BREAKER OPERATORS

Profits (in dollars)	Number of operators in each group as per cent of total
Up to 10.....	4.5
Over 10 and up to 20.....	22.7
Over 20 and up to 30.....	24.2
Over 30 and up to 40.....	12.1
Over 40 and up to 50.....	8.5
Over 50 and up to 70.....	9.5
Over 70 and up to 100.....	4.0
Over 100 and up to 150.....	3.0
Over 150 and up to 200.....	10.0
200 and over.....	1.5
Total.....	100.0

The summary balance sheet of the average bootleg breaker is as follows, on a weekly basis:

Gross receipts (112 tons sold @ \$4.35).....	\$487.00
Expenses:	
Payroll	\$34.00
Power, repairs, supplies, rent.....	13.00
Coal (119 tons @ \$3.05 average, of which 56 tons @ \$2.65 and 63 tons @ \$3.40).....	363.00
	<hr/> 410.00
Profits	\$77.00
Profits per operator (1.4 operator per breaker).....	\$55.00

The working habits of bootleg breaker operators and their employees are substantially the same as those of the man engaged in the bootleg holes, with a few exceptions. Business is usually begun at about nine in the morning. The number of hours worked per day averages a little more than 7 for 5½ days per week, or 38 hours per week. Whereas in the bootleg hole the work is begun earlier during the day and is continuous for 8 hours, the bootleg breaker workers may be called upon at any time during the day or evening to load a truck with coal.

III. THE BOOTLEG BREAKER OPERATORS AND WORKERS: PREVIOUS OCCUPATION, RECEIPT OF GOVERNMENT HELP, AGE, CITIZENSHIP, EDUCATION

The personal histories of the men under 25 years of age who are working in the bootleg breakers are practically the same as those of the men corresponding ages working in the bootleg holes. There is a difference, however, with respect to the older men. The typical breaker operator may be either a former miner who has accumulated a little money, or a farmer, or some other person whose customary occupation was not that of mining. The vast majority of the men in the bootleg breakers, whether employers or employees, have spent their lives in the anthracite region; 99.6 per cent of them have been residing in the region for at least the past ten years.

Although a larger fraction of the men working in bootleg breakers were formerly connected with industries in the anthracite region other than mining than was true of the men in the bootleg holes, the number who are former miners or miners' sons is large. Forty-seven per cent of the total number of men now working in bootleg breakers were formerly engaged in legal mining. Furthermore, 48 per cent of those who were at one time employed at a legal colliery, or 23 per cent of all the bootleg breaker workers, have anthracite miners' certificates. Of the total breaker workers who have never worked in a legal mine, 36 per cent are sons of miners who have never had any kind of previous employment. The corresponding figure for the bootleg miners is only 19 per cent. The remaining 17 per cent of the total are men who never worked in a legal mine but who had customary occupations in the anthracite regions other than mining.

Among the 47 per cent who were employed in a legal mine at some time during their lives, the average length of such service was found to be 15 years. The range is from one-half year to 60 years of service. The middle 50 per cent of the former miners questioned has been employed in legal mines from 6 to 20 years.

Some of the men now engaged in bootleg breakers, like those

in the bootleg holes, have attempted at times to seek jobs outside the region. Eighteen per cent of the total number of the men now working in bootleg breakers did actually leave the coal region to find work elsewhere. Most of them sought jobs in large cities, and spent about three months in each place looking for work. During the interval between the loss of their previous customary occupations and the beginning of bootleg activities, 20 per cent of the total breaker workers found jobs in private industry. Most of them, however, were classified as temporary odd jobs.

Of the total number of bootleg breaker workers, 56 per cent applied at one time or another for either relief or W.P.A. Some 43 per cent were accepted, so that at one time or other these 43 per cent were either on W.P.A. or relief or both. 13 per cent were refused any kind of government aid. None of the total breaker workers are at present engaged on government emergency projects, although 5 per cent of them are now receiving relief. In Table XXIII, a complete classification is presented.

TABLE XXIII.—BREAKER WORKERS ON RELIEF AND W.P.A.

Status	Number of breaker workers as per cent of total
On relief:	
Now	4.9
Formerly	32.9
Total	37.8*
On W.P.A.:	
Now	0
Formerly	16.3
Total on W.P.A. (or other gov- ment projects)	16.3

* The sum of the totals on relief and W.P.A. is greater than the 43 per cent of the total breaker workers who were accepted for government aid, since there is overlapping between the two classifications. Some people received both W.P.A. and relief.

It also appears that 0.6 per cent of the total men working on breakers were employed in private industry at the time of questioning.

The ages of the men working in bootleg breakers were likewise investigated. For this purpose the bootleg breaker workers were grouped into three categories, consisting of those who have previously worked in legal collieries, those who have never worked in any legal mine, and those who have never worked at all. While the average age of all the men working in bootleg breakers is 30 years, the average age of those who have never worked in a legal mine is 23 years, and the average age of those who have never worked at all is 19 years. Table XXIV gives

the actual age distribution of the total workers in bootleg breakers. Some 50 per cent are under 26 years of age, while the middle 50 per cent fall between the ages of about 20 and 39 years.

TABLE XXIV.—AGES OF BOOTLEG BREAKER WORKERS

Age (in years)	Number of men in each group as per cent of total
13 and under 17.....	7.1
17 and under 21.....	24.9
21 and under 25.....	14.3
25 and under 29.....	9.4
29 and under 33.....	7.1
33 and under 37.....	8.4
37 and under 41.....	8.8
41 and under 45.....	4.9
45 and under 49.....	4.9
49 and under 53.....	3.8
53 and under 57.....	2.8
57 and under 61.....	1.7
61 and under 65.....	.6
65 and over.....	1.3
Total.....	100.0

A study of the marital status of the workers in bootleg breakers shows that of the total, 54 per cent are single, 45 per cent are married, and 1 per cent are widowed. The number who are divorced is less than one per cent. It was also found that the average number in a bootleg breaker worker's family is five, the middle 50 per cent of the sizes of the families ranging between two and seven persons.

In the average bootleg breaker family, consisting of five persons, 1.7 of these persons are employed either at bootlegging or in private industry. Only 0.1 are in private industry, however, and none are employed on government projects. The remaining 1.6 persons are in bootlegging. Hence practically all of the people in bootleg breaker families are directly dependent upon bootleg breakers for their livelihoods.

The great majority of the bootleg breaker workers are native-born citizens of the United States, the actual figure being 92 per cent. The number of naturalized citizens engaged in the breakers is 8 per cent, while the number of aliens is less than 1 per cent. On comparing these figures with the United States Census of 1930 for Schuylkill and Northumberland counties, as a check, it was found that the figures here are similar to those presented in the preceding chapter. There has been no marked drift of aliens into the bootleg breakers.

With respect to union membership, 79 per cent of the bootleg breaker workers belong to one union or another. Of the total number of bootleg breaker workers, 36.1 per cent are or were

formerly members of the United Mine Workers of America. This indicates that a large percentage of those present bootleg breaker workers who formerly worked in legal mines belonged to the union; 69.1 per cent belong to the Independent Miners and Truckers Association, while one per cent are members of other unions. The latter are men whose original occupations were other than that of mining, and who therefore belonged to the guilds of their original crafts.

The situation with respect to the education of the bootleg breaker workers is the same as for the bootleg miners at the holes. Most of them were forced by the pressure of economic necessity to leave grammar school, and to go to work in the bootlegging industry, because of the lack of employment opportunities in the mining industry they would normally have pursued.

IV. BOOTLEG TRUCKING

The very existence of the bootleg breakers is wholly dependent upon bootleg holes. It is a little known fact, however, that the truckers who transport bootleg coal are not wholly dependent upon the bootleg industry, although bootleg mining did give coal trucking a large impetus. Even before the advent of large scale bootlegging the trucking of coal from small independent mines, especially in the northern region, was a fast growing industry. Truckers who carry bootleg coal do not confine themselves wholly to the transportation of this coal alone. This is especially true during the winter, when the demand for coal is large. In the winter, bootleg production is insufficient to supply the truckers' needs, and rather than leave their customers unsatisfied the truckers purchase from legal sources even though the price per ton of coal is higher than at the bootleg breakers. It is estimated that about 50 per cent of the coal trucked from the southern region during the winter months is legitimate coal, whereas during the spring and summer seasons, when more coal is available at the bootleg breakers, this figure falls to about 30 per cent.*

In attempting to estimate the number of truckers involved in the transportation of bootleg coal, the above factors must be taken into consideration. As a rule, one man operating one truck can haul on the average $4\frac{1}{2}$ loads per day, at 3 tons per load, from the bootleg hole in the mountain to the bootleg

* Two comments may be made here. First, attempts have been made to calculate bootleg output by counting the number and sizes of trucks on the highways. Since independent truckers transport both legal and illegal coal, however, such calculations yield incorrect results, especially during the winter season. Second, the conception that bootlegging will be eliminated by passing legislation such as is now being enacted in New York, Baltimore, and New Jersey, fails to take into consideration that this legislation will also eliminate the trucking of legitimate coal.

breaker. This works out at roughly 68 tons per week. The fact that the capacity of the average truck is only about 3 tons is explained by the difficulty of moving coal over the steep and rocky mountain roads. Since an average of 63 tons per week is bought by each bootleg breaker operator from independent truckers, as shown above, the number of independent truckers is a little less than one for each of the 342 bootleg breakers, or roughly 315 independent truckers. This latter figure excludes truckers employed by the breaker operators, who are included among the breaker workers.

In addition to the truckers mentioned above are those truckers who transport coal from the bootleg breakers to the consumers. In this case an average of $1\frac{7}{8}$ men are used on each truck (some trucks are operated by one man, although the majority are operated by two). These trucks haul on the average 7 tons per load, carry an average of one load per day, and operate 5 days per week. This works out at roughly 35 tons per week. The trucks vary in size from 4 tons to large trailer trucks, the average being about 7 tons. Since there are 342 breakers, which sell an average of 112 tons per week, roughly 1,100 trucks and 2,050 men are engaged in this branch of bootleg trucking. If the number of truckers who haul directly from bootleg holes to consumers, amounting to about 50 truckers, is now added to the two groups of truckers just described, the total number of independent truckers (excluding those employed by breaker operators) works out at roughly 2,450.

V. THE FINANCIAL SIZE OF THE BOOTLEG COAL INDUSTRY

From inquiries among the members of the various truckers' associations, it appears that the average price received by the truckers for all grades of sized coal sold to final consumers is about \$7.50 per ton. These truckers now sell an average of 2,150,000 tons per year, as shown above (including both coal bought from bootleg breakers and the small quantity which is prepared for market at the bootleg holes and bought there). The total sum paid to truckers by final consumers for bootleg coal is therefore roughly \$16,000,000 per year.

Of this \$16,000,000, the truckers pay some \$9,500,000 to bootleg breakers and bootleg holes for coal ready for the market. They retain \$6,500,000 to cover their own expenses (cost of trucks, wages, gas, oil, insurance, etc.) and their own profits; the latter are usually not great, since the average *gross* profit above cost of coal is under \$1,000 per year per truck. The gross receipts of the bootleg breakers are about \$8,265,000 per year, of which about \$5,392,000 per year is paid to the bootleg holes for unprepared coal. The bootleg holes themselves receive this latter sum, plus about \$1,235,000 received direct from truckers

for prepared coal, making total gross receipts for the bootleg holes of about \$6,627,000 per year.

These various figures give a comprehensive picture of the total financial size of the bootleg industry. They are summarized in Table XXV.

TABLE XXV.—FINANCIAL SIZE OF THE BOOTLEG INDUSTRY: VOLUMES PER YEAR

(Figures representative of 1936-1937)

BOOTLEG TRUCKERS (haul to final consumers)—

Receipts: From final consumers (2,150,000 tons at \$7.50 average)..... \$16,000,000

Payments:

To bootleg breakers, for coal.....	\$8,265,000
To bootleg holes, for coal.....	1,235,000
Other expenses and profits.....	6,500,000

BOOTLEG BREAKERS—

Receipts: From truckers..... 8,265,000

Payments:

Direct to bootleggers (own trucks).....	2,516,000
To truckers (haul from holes to breakers).....	3,690,000
Other expenses and profits.....	2,059,000

BOOTLEG TRUCKERS (haul from holes to breakers)—

Receipts: From breakers..... 3,690,000

Payments:

To bootleg holes, for coal.....	2,876,000
Other expenses and profits.....	814,000

BOOTLEG HOLES—

Receipts:

Direct from breakers.....	2,516,000	
From truckers who haul from breakers.....	2,876,000	
From truckers who haul to consumers.....	1,235,000	6,627,000

Appendices

APPENDIX A

FIELD SCHEDULES AND INSTRUCTIONS TO ENUMERATORS

To obtain the personal histories of the bootleggers and pertinent information relating to the bootleg holes and breakers, four sets of field schedules, each relating to one of the above subjects, were devised. In addition every field agent was equipped with a set of instructions explaining in detail the meaning and purpose of the various questions on each of the three sets of schedules.

The field agents were divided into two groups; one to obtain information on bootleg holes; the other to interview the bootleggers working in the breakers for their personal histories and for information concerning the breakers. To avoid any confusion between bootleggers in the holes and those in the breakers, personal histories of the former were called "Field Schedule II", while those of the latter were called "Field Schedule IV", although the forms of Schedules II and IV were identical. Thus statistics have been rendered separately for each group. Field Schedule I was a questionnaire on the bootleg holes, while Field Schedule III was a questionnaire on the bootleg breakers.

The following are the forms of these Schedules.

ANTHRACITE COAL INDUSTRY COMMISSION
SCHEDULE I--BOOTLEG MINES

Field Agent.....

Date

Mine Sheet No.....

Ind.	1. Location of mine:	Township .....County
Ind.	2. Name of owner of land:	(Individual Owner)
		(Company) .....Colliery
Ind.	3. Position of man interviewed:	.....
A-15	4. How long at work in this mine:	.....
Ind.	5. How long hole worked by present bootleggers:	Years .....Months
A-1a, b	6. Type of business structure: (Individual, partnership and family enterprise. If partnership number of partners should be indicated.)	No. ....Names
	
Ind.	7. Original investment in mine:	Cost \$.....
Ind.	8. Dead work:	Men .....Month
A-2	9. Average weekly expenses for:	Power
		Powder
		Lumber
		Other supplies
		Total
		Full time.....Part time.....
Ind.	10. Number of workers:	.....
A-3	11. Of these how many are certified miners:	.....
C-2		.....
A-4	12. Of total employed, how many have other employment:	.....
C-5		.....
A-5	13. How many are on wage basis:	.....
C-6		.....
A-6	14. Wages paid per week are:	.....
C-7		.....
A-14	15. If not on wage basis how much does each worker receive per week when earnings are divided:	Average .....Range
A-7	16. Other systems of payment:	No. of recipients.....
		Nature of income.....
A-8	17. Average hours worked per day per full time worker:	Now.....January.....Year ago.....
A-9	18. Average days worked per week:	Now.....January.....Year ago.....
A-10	19. Average days worked per month:	Now.....January.....Year ago.....
C-1	20. Number of above workers not covered by personal questionnaire (Schedule II):	.....
Ind.	21. How many attempts to evict them:	.....By whom.....
Ind.	22. Is there a court injunction against them at present:	.....
C-8	23. Serious and fatal accidents since beginning of independent operations:	.....
		Average .....Range
A-14	24. Average number of trucks loaded:	Per week.....Per week.....to.....
		Per mo.....Per mo.....to.....
		Av. size of trucks.....tons
A-11	25. Number of trucks loaded with coal:	Past week.....Past mo.....
		January
		Average size of trucks.....tons
A-12	26. Percentage of coal sold to each of the following:	% to truckers%
		% direct to bootleg breakers.....%
		% to others%
A-13	27. No. and names of different truckers to whom coal is sold:	No. ....Names
	
Ind.	28. Number of men per truck:	.....
Ind.	29. Current sales price of coal at mine:	Now \$.....per load: 3 mos. ago
		\$..... per load
Ind.	30. Remarks:	.....

ANTHRACITE COAL INDUSTRY COMMISSION
SCHEDULE II—BOOTLEG MINERS: PERSONAL

Field Agent.....

Date

Personal Sheet No.

Ind.	1. Name	
Ind.	2. Address	
Ind.	3. Working in mine described on:	Mine Sheet No.
Ind.	4. Age	Miner's son
Ind.	5. Marital status	
B-1	6. Number in family:	Total .....No. employed
		At what
Ind.	7. Citizenship (check one):	Native .....Natur. ....Alien
B-2	8. Residence in:	1927 .....1932 .....1935
Ind.	9. Has previously worked in legal mine:	.....
B-2		
B-9	10. No. of yrs. worked in legal mine:	.....
B-12		
B-3, 12	11. Yr. last worked in legal mine:	.....
B-12	12. Names of legal mines worked:	.....
B-12	13. Kind of work in legal mine:	.....
B-12	14. Has anthracite miner's cert.:	.....
B-12	15. Customary occupation other than mining:	Kind .....Length
		Name of employer.....
Ind.	16. Now engaged elsewhere:	Kind
B-10	17. Length of time elapsed between last customary job and bootleg mining:	Length .....From .....To
B-4	18. Private employment during interval given in Ques. 17:	Type .....From .....To
Ind.	19. Amount and nature of savings drawn upon during interval given in Ques. 17:	.....
Ind.	20. Applied for W.P.A. or relief work. State result:	.....
B-5	21. On relief:	Now .....Formerly
B-6	22. Months on relief since 1932:	Length .....From .....To
B-13	23. Months on W.P.A.:	Length .....From .....To
B-7	24. Left coal region to look for other job:	.....
	
B-10	25. Date when began bootleg mining:	Year .....Month
B-8a, b	26. Length of time in bootleg mining:	.....
B-11	27. Employment at various holes:	Av. Wkly. Earn. Nature of any
C-3	(Length of time—actual months)	(Wages or Prof.) Accident
C-4	1. ....	.....
	2. ....	.....
	3. ....	.....
	4. ....	.....
Ind.	28. Member of Union:	.....Which
11-4	29. When did you leave school:	.....Grade
Ind.	30. Why did you leave school:	.....
Ind.	31. Why in bootleg mining:	.....
Ind.	32. Remarks:	.....

ANTHRACITE COAL INDUSTRY COMMISSION
SCHEDULE III—BOOTLEG BREAKERS

Field Agent.....

Date

Breaker Sheet No.

Ind.	1. Location of breaker:	Township .....County
	2a. Breaker owned by:	.....
Ind.	2b. Who lives at:	.....
	2c. Whose other occupation is:	.....
Ind.	3. Breaker operated at present by:	.....
D-4	4. If leased, monthly rent paid for breaker:	.....
Ind.	5. Cost (investment) of breaker:	Original \$.....Improvements \$.....
Ind.	6. Repairs of breaker per month:	.....
D-3	7a. Land on which breaker stands is owned by:	Operator
		Breaker owner
		Other person
		Name
		Address
		Occupation
		\$
D-3	7b. If owned by other insert:	.....
	
D-4	8. If rented, monthly rental for land:	.....
Ind.	9. How long breaker operated:	.....
F-3	10. Number of workers:	Breakers.... Truckers.... Others....
D-5	11. Number of truck-loads bought:	Past Week..... Past mo.....
		Jan.....
		Average size of trucks.....tons
		Average Range
D-6	12. Average number of truck loads bought during past 3 months:	Per week..... Per week..... to.....
		Per mo..... Per mo..... to.....
		Average size of trucks.....tons
		Average Range
D-7	13. Number of truck loads sold during past 3 months:	Per week..... Per week..... to.....
		Per mo..... Per mo..... to.....
		Average size of truck.....tons
		Locally.....
	14a. Per cent of sized coal sold:	.....
	14b. In own trucks to regions over 20 miles away:	.....
D-8	14c. To truckers who sell more than 20 miles away:	.....
	14d. Others:	.....
D-9d	15. Estimated receipts weekly:	\$
	Payments weekly: D9g	For coal.....
	F5	Payrolls
	D2	Power
		Repairs
		Supplies
		Rent
		\$
	D9a Total:	\$
	D9f Profits weekly:	\$
D-9c	Estimated tons bought:	Weekly.....tons
D-9b	Estimated tons sold (of each size):	Weekly.....tons
	Estimated price paid for coal: Ind.	At breaker \$.....
	D9e	At mine \$.....
	Price received for coal: Ind.	\$
Ind.	16a. Number of trucks the breaker owns:	.....
D-10	16b. Number and names of other truckers from whom coal is bought:	.....
	
Ind.	16c. Do any of these truckers sell to other bootleg breakers? (Number):	.....
Ind.	16d. Number of men on a truck:	.....
Ind.	17a. Number and names of different truckers to whom sized coal is sold:	.....
	
Ind.	17b. Number of men on a truck:	.....
	18a. Number of hours worked per day:	Now..... 3 mos. ago..... yr. ago.....
	18b. Number of days worked per week:	Now..... 3 mos. ago..... yr. ago.....
D-11	18c. Number of days worked per month:	.....
	18d. Number of months worked per year:	Now..... 3 mos. ago..... yr. ago.....
D-12	19. Description of workers by age groups:	This year..... Last year.....
F-4		Number
		Under 21
		21-25
		Over 25
Ind.	20. Remarks:	.....

ANTHRACITE COAL INDUSTRY COMMISSION INSTRUCTIONS FOR CENSUS SCHEDULES

GENERAL INSTRUCTIONS

Four sets of schedules have been prepared to obtain a census of bootleg mining:

Schedule I—A questionnaire on bootleg mines.

Schedule II—A questionnaire on the personal history of bootleg miners working in the mines studied in Schedule I.

Schedule III—A questionnaire on bootleg breakers.

Schedule IV (Same as Schedule II)—A questionnaire on the personal history of men working in breakers studied in Schedule III.

Field agents will be identified by letters, which will in turn be used to identify schedules.

Schedules I and II are to be filled out by field agents concurrently when they go from one bootleg mine to another. Since the bootleg breakers differ from the actual bootleg mines in function, there will be specialized field agents who will work with Schedules III and IV.

Purpose of *Schedule I*: To obtain information concerning bootleg mines under the following topics: employment, wages, hours of work, production, sales, expenses, and profits.

Purpose of *Schedule II*: To get a case history of the workers in the bootleg mines embracing the following topics: family history, previous occupational status, relief status, and earnings from bootleg mining.

Purpose of *Schedule III*: To obtain information concerning the business of the breakers, such as employment, production, prices, earnings, sales, expenses, and investments.

Purpose of *Schedule IV*: Similar to Schedule II with appropriate changes to give a personal history of workers in breakers.

The work of the field agent will consist primarily in following instructions given below and filling out the questionnaires. The field worker should strive to make his reports on each visit a complete unit, with data identified, methodically arranged and sufficiently annotated so that the editing, compilation, and analysis of the data can be utilized in the office without further reference to the field workers.

Pertinent information should always be recorded on paper as memories are fallible and field agents are not always available when further use is being made of Schedules.

In no case is a question to be left blank. If the answer to a question is none, insert the word "none." This may apply for example to question 13, Schedule I. If the data is withheld, the

words "not given" should be inserted. If the data is unknown to the person being questioned, insert the words "no data." Instructions will indicate where dashes are acceptable.

INSTRUCTIONS FOR SCHEDULE I

The field agent will insert his name in full in the appropriate space provided at the top of the Schedule, together with the date on which the questionnaire is filled out. The mine sheet numbers will follow in numerical sequence, to be preceded by the letter of the field agent. An effort should be made to remember the last number used, so that numbers will neither be duplicated nor skipped.

1. Self-explanatory.

2. Insert after "company, individual owner," the name of either the company upon whose property the bootleg mine is dug, or the name of the individual owner, if the bootleg mine is dug on land owned by an individual. In connection with the name of the colliery, the question arises, "When is a bootleg mine dug on a colliery?" It is dug on a colliery when the bootleg hole is located near or about, above or below, an active or shutdown legal mine. When such is the case, insert the name of the colliery, and whether it is active or inactive. When such is not the case, that is, the bootleg mine is located on an outcrop far from any active or inactive colliery, insert the word "new."

3 and 4. The reliability of the questions may be ascertained by the answers to these questions. For example, the operator of the bootleg hole may give more accurate replies than a young boy or other employee.

5. Insert the length of time from the beginning of bootleg operations by the present group to the present.

6. Identify the type of business structure by crossing out two of the three items, individual, partnership and family enterprise. By *individual* is meant one person who is in charge of operations and hires men to work for him for wages. By *partnership* is meant two or more men, not of the same family, who operate the mine and divide all the earnings equally. If partnership, insert in the appropriate space the number of partners. By *family enterprise* is meant the operation of the mine by members of the same family, whether father and sons or brothers and cousins.

7. By original investment in mine is meant the total cost entailed before any coal was brought to the surface to be sold. It is the cost of sinking shaft or slope to obtain coal, the cost of trucks, etc.

8. By dead work is meant the total man months worked by one or more men in the bootleg hole before coal was brought to the surface to be sold. Indicate the length of time of dead work in months, and the number of men engaged in the dead work.

9. The field agent should insert the total when the items are given individually. When the total alone is given, the field agent should insert it in the appropriate space.

10. By a full time worker is meant one who works the standard number of hours per week, etc., as indicated in questions 17-20 inclusive. By a part time worker is meant one who is not a full time worker. If a man works, for instance, two full days at a legal mine and two full days at the bootleg mine, while all the other men work four full days at the bootleg mine, the man who works two days is a part time worker. The field agent will be required to use his judgment in getting a response to this question. He must now allow such reasons as: a miner is a slow worker; or a worker is too old; to cause the field agent to classify him as part time. The number of workers employed includes everybody working at (inside and outside) the bootleg mine, whether he be the operator of the mine, an employee, or a partner.

11. A certified miner is one who has received from the State authorities a miner's certificate which is granted only when the applicant produces satisfactory evidence that he has been employed for not less than two years as a miner's helper in an anthracite mine and has passed an examination to demonstrate his fitness and knowledge of anthracite mining practices. The number of such miners of the total working in that particular bootleg hole should be inserted.

12. By any other employment is meant any other place (excluding the particular bootleg mine in question), from which the worker receives money in payment for services rendered.

13. If a bootleg mine is operated by an individual, or partners, employing other miners or helpers for wages, insert the number of such employees. If a mine is operated solely on a partnership or family basis, insert the word "none" in the blank.

14. If the answer to question 13 is other than "none," insert the wages per week according to the following scheme: 2 miners, \$25.00 *each*; 3 helpers, \$18.00 *each*, etc. If wages are paid on basis other than weekly, such as hourly or daily, indicate this rate as for example: 2 miners, *each* at \$.50 per hour, etc. If the answer to question 13 is "none" because the bootleg mine is operated on a partnership or family basis, insert a dash (—) in the blank of question 14.

15. If a mine is operated by partners or a family group, earnings are in general equally divided. Insert the amount earned per week by one individual, which will then be indicative of all workers. Since earnings vary from week to week, obtain as many weekly earnings per person as possible. Add these weekly earnings per person and divide by the number of weeks. Insert the result in the blank marked "Average" of question 15. To

obtain the range, select the lowest and highest of the weekly earnings per person.

16. If there is remuneration other than wages and earnings described above, as for example: food, board and shelter (which may happen in the case of children), indicate the number of such persons, and the nature of these payments.

17. By average hours worked per day is meant the number of hours customarily worked full time by the miners. If it is the custom of the workers of a particular bootleg mine to work 8 hours per day, although there may be some part time workers such as boys helping after school, men who have other jobs, all of whom may average 4 hours per day, the average number of hours worked per day is considered as 8. If the data for three months ago or a year ago is not obtainable or does not exist, write "no data."

18 and 19. See instructions for question 17.

20. It may not be possible to interview all the people working in a bootleg mine because it may upset the program of the workers. Therefore, after filling out Schedule II's, subtract the number of Schedule II's from the total number of workers employed as listed in question 10 of Schedule I, and insert this result in the blank of question 21.

21. Insert the number of attempts to evict them by either local or state police or coal and iron police.

22. Self-explanatory.

23. Insert the number of serious and fatal accidents, indicating which are which. By a serious accident is meant one that will incapacitate the worker for several days. The field agent will be required to use his discretion in accepting answers. For example, he must distinguish between a sprained ankle, which is serious, and a strained ankle, which is not serious.

24. Insert under the average number of trucks loaded per week during operations. Obtain this either by a direct answer from the bootlegger or by obtaining as many weekly figures as possible and averaging these. From this data select the lowest and highest figures and insert these under range per week. Obtain similar monthly data and insert the average size of truck-loads in tons.

25. By number of trucks loaded with coal during the past week is meant the production for a full week (in terms of trucks loaded), ending on the Friday, Saturday or Sunday (according to when the week ends for a particular individual operator) nearest to the date when the interview is made. By past month is meant previous four weeks. If the hole was not still doing dead work in January or had just started, insert a — for January.

26. Indicate by percentages the types to whom the output is sold. If "others" is checked, indicate to whom.

27. Attempt to obtain names of all truckers to whom coal is sold. If this cannot be done, name as many as possible and indicate the total number of truckers.

28. Indicate the number of men on a truck, including the driver.

29. The price of coal per ton actually received at the mine, now and three months ago, whether it be from a trucker, a breaker operator, or anyone else, should be inserted. If the price is given for a truck load, divide this price by the number of tons the truck hauls.

30. Under "Remarks" write down clearly all information gathered, however unrelated it may appear at the moment. This space may also be utilized for elaboration of any questions, although the field agent should use his discretion in filling out this space.

INSTRUCTIONS FOR SCHEDULE II

1. Insert full name if possible. If person interviewed refused to give name, insert "not given" in appropriate space after question. Even if name is not forthcoming continue to fill out questionnaire.

2. Insert street, town or county. If cannot get all three, insert any of the three obtainable. If address is refused, insert "not given" in appropriate space after question 2.

3. Refers to mine sheet number of Schedule I in which mine this particular worker is employed.

4. Self-explanatory.

5. Indicate whether single, married, widowed, or divorced.

6. By family is meant children, wife, aged parents; and in addition, friend or relative who is supported by person interviewed. Indicate total number of persons in family as defined above, including person interviewed. Insert number in family (including person interviewed) of those who are self-supporting, and briefly describe nature of such employment in blank marked "At what." Furthermore, if another member of the family is engaged in bootleg mining consider him employed.

7. Self-explanatory.

8. Insert city or town or county as well as the state in which this person lived on the dates indicated.

9. Answer to be either "yes" or "no."

10. If "no" is inserted for question 9, insert a dash (—) in blank of question 10. If a "yes" is inserted for question 9, indicate the number to nearest half year, for example, either 1 year, 2½ years, etc.

11. Insert a dash (—) if answer to question 9 is "no."

12. Insert actual names of collieries in which person worked.

13. This may include among other types of work, contract miner, company miner, mucker, laborer, engineer, etc.

14. A certified miner is one as defined under 11 of instructions for Schedule I. Answer either "yes" or "no."

15. If answer to question 9 is "no," indicate kind of occupation previous to bootleg mining. This may include school. If answer to question 9 is "yes" there may or may not be an answer to 15.

16. Includes all types of private work. A person may be a railway employee, a clerk in a store, a worker in a mill, a worker in a legal mine, etc. Indicate nature of work in this other place.

17. This refers to actual lapse of time between loss of customary job listed in question 9 or 15 and beginning of any bootleg mining.

18. This refers to employment during interval given in question 17. Therefore, such employment as bootleg mining or regular occupation is excluded. List separately each job held in private industry or any kind of private enterprise (excluding government projects), which lasted for at least three months. If there was no such employment, write "none."

19. This question attempts to ascertain the source of income during interval referred to in question 17. If during this time he had no savings, indicate as clearly as possible source of his living income, such as bonus, insurance, friends or relatives, temporary jobs referred to in question 18, etc.

20. If worker has received either or both, insert word "accepted" in appropriate space: If not, insert the word "refused" and obtain reason why refused. If did not apply at all, insert "did not apply." If "accepted" place in parenthesis whether accepted on W.P.A. or relief.

21. Some people may have been on relief but at present are not. If they are on relief when interviewed, place a check (✓) after "now." If they are not on relief but were on relief at some time in the past, place a check (✓) after "formerly."

22. Whether a person is on relief at present or was on relief at some time in the past, after 1932, insert the number of months this person was actually on relief. Being on W.P.A. is not to be considered as being on relief. When a person is on W.P.A. this is to be inserted under questions 23 and 20.

23. Self-explanatory.

24. The question attempts to discover how often a person left the coal region to look for a job, where he went, how long he stayed, how successful, and why he returned.

25. Indicate actual date when worker *first* started bootleg mining.

26. Indicate in years and months total time spent in bootleg holes.

27. This refers to bootleg mining. Indicate length of time, average money received per week, and nature of any accident which befell him. List most recent hole first, and work backwards chronologically. Indicate under average weekly earnings on each line, by a W or a P whether wages or profits, respectively.

28. If the person interviewed is a member of a union, place a check (✓) in the space allotted; if not, place a cross (X) in the space. If he is a member of the United Mine Workers of America, insert "U.M.W." after the word "which;" if the person is a member of the Independent Mine Workers and Truckers Association insert "I.M." If he is a member of any other union write out the full name of the union.

29 and 30. It is important to obtain a response to this question if the person interviewed is from 15 years to 25 years old. If the person is beyond this age it is not necessary for him to answer these questions. If he does not answer, insert "not given" or "no data."

31. Any of the following reasons or any other given should be inserted after this question; age (too young, no experience, or too old), colliery shutdown, displaced by a machine, refused a job because of health, lack of other employment possibilities.

32. Under "Remarks" write down clearly all information gathered, however unrelated it may appear at the moment, as such information may prove valuable later. The field agent should use his discretion in filling out this space.

INSTRUCTIONS FOR SCHEDULE III

1. Self-explanatory.

2A. The owner may be identical with the operator or if the breaker is leased to an operator, the owner will not be the same person as the operator. Insert the name of the man who actually owns the breaker whether he be the operator or not.

2B. Insert the owners' address.

2C. If the breaker owner works at the breaker, the answer to this question is "none"; if he leases or rents the breaker, and does not work any place, write "not employed"; if he works elsewhere insert his occupation.

3. The name of the person actually operating the breaker at present.

4. If breaker is leased insert exact amount paid by the operator to the owner of the breaker. If not leased insert "no data."

5. The original cost of installing the breaker should be inserted after the word "original." If at any time after the initial construction of the breaker additional improvements (not repairs) are made, such costs should be inserted after "improvements."

6. This should include the costs for repairs and maintenance of the breakers due to breakdowns in the machinery.

7A. If operator is not the owner of the breaker and he owns the land upon which breaker stands only insert check (✓) after "operator." If owner and operator are the same person and he owns the land upon which the breaker stands insert check (✓) after both "operator" and "breakers owner." If neither operator nor owner of the breaker own the land upon which the breaker stands insert check (✓) after "other person."

7B. If the land on which the breaker is erected is owned by a person other than either the operator and the breaker owner, insert the name and address and occupation of the actual owner of the land. If land owned by either operator or breaker owner, insert "none."

8. If the land upon which the breaker is erected is owned by a person other than the operator of the breaker or the breaker owner, insert the monthly rental paid to the owner of the land for use of the land. If land owned by either operator or breaker owner, insert "none" after the question.

9. The length of time desired is the period of time which elapsed from the day the breaker was built up to the present.

10. Number of workers on breakers means those actually engaged in work in or around breaker. The number of workers on trucks only refers to those who are actually engaged in the transportation of the coal and are employed by breaker operator. Do not include the number of truckers who own and operate own trucks. The number of other workers employed by breaker owners consist of such employees as clerks, salesmen, etc.

11. The question attempts to ascertain actual number of truck-loads bought for the periods of time indicated. By the past week is meant the full week ending on the Friday, Saturday, or Sunday (according to when the week ends for a particular individual operator) nearest to the date of the interview. By past month is meant the last four weeks nearest to the date of the interview. Insert average size of *truck-loads* in tons.

12. Obtain the number of truck-loads bought each week during the past three months. Add these numbers and divide by the number of weeks. Insert this figure under "Average per week." From this data select the lowest and highest figures and insert these under range per week. Obtain similar monthly data for the past three months and repeat the process. Insert the average size of *truck-loads* in tons.

13. Same as 12, except that this question refers to the num-

ber of truck-loads of sized coal sold to the truckers for delivery.

14A. By locally is meant within a radius of 20 miles of total sold, indicate percentage sold locally; i. e., coal sold to anyone living locally who comes to the breaker for the coal, or coal sold by breaker's trucks to anyone living in local region.

14B. Of total sold, indicate percentage carted by breaker's own trucks to regions over 20 miles away.

14C. Of total sold, indicate percentage sold to other truckers who sell over 20 miles away.

14D. Of total sold, indicate percentage sold to others not covered in questions 14 A, B, and C.

15. This table is a recapitulation table or a balance sheet relating to the business of the breaker. Questions asked here are by necessity repetitions but should not be copied from other questions, but asked in their chronological order. The difference between this question and the others relating to the same subjects is that here only weekly information is necessary and the other question attempts to cover a period of time. The number of tons bought and sold should be asked for in terms of truck-loads bought and sold and converted into tons. The price for coal per ton at breaker means the price paid to truckers who own their own trucks and sell to breaker operators, while the price paid for coal per ton at mines means the price paid by breaker operator to bootleg miners at the bootleg hole, which coal is trucked away by the breaker operators. Estimated receipts per week and per month are the gross income received by a breaker operator from the sale of coal. Insert the total paid per week to employees as wages by the breaker operator.

16A, 16B. Self-explanatory.

16C. Of those mentioned in 16B, insert the names of the ones selling to other bootleg breakers as well as the breaker in question. Also indicate the number of such truckers.

16D. Usually a truck has just a driver. If so, insert a "1" in this space. If the driver has a helper or a number of helpers insert both the number of drivers and helper or helpers.

17A. Self-explanatory.

17B. This refers to trucks buying coal from breaker.

18 A, B, C, and D. See instructions for questions 17, 18, 19, and 20 of Schedule I.

19. Insert the number of men including the operator under the age classifications as indicated by this question.

20. Under "Remarks" write down clearly all information gathered, however unrelated it may appear at the moment, as such information may prove valuable later. The field agent should use his discretion in filling out this space. Include the position of the man interviewed as well as length of service in particular breaker.

INSTRUCTIONS FOR SCHEDULE IV

The form of this schedule is identical with that of Schedule II, so that the instructions are the same with a few exceptions. In question 3 of Schedule II replace "Mine Sheet No." by "Breaker Sheet No." for Schedule IV. Furthermore, all questions relating to bootleg mining on Schedule II refer to all branches of the entire industry, whether it be work in a breaker, trucking, or working in a hole. Aside from these, there are no further differences between Schedule II and Schedule IV.

APPENDIX B

OFFICE SCHEDULES AND INSTRUCTIONS TO EDITORS

Six sets of schedules have been prepared for the purpose of checking the answers to the questions of all the field schedules.

Schedule A.—Questionnaire for checking internal consistency of Schedule I.

Schedule B.—Questionnaire for checking internal consistency of Schedule II.

Schedule C.—Questionnaire for checking consistency between Schedule I and all Schedules II covering particular mine studied in Schedule I.

Schedule D.—Questionnaire for checking internal consistency of Schedule III.

Schedule E (same as Schedule B).—Questionnaire for checking internal consistency of Schedule IV. (Since Schedules II and IV are the same, Schedules B and E are the same.) *

Schedule F.—Questionnaire for checking consistency between Schedule III and all Schedules IV covering particular breaker studied in Schedule III.

These six schedules will be known as the office schedules.

The following symbols are used in the Schedules A-F, inclusive:

The symbol “—” (minus) means a difference or subtraction.

The symbol “+” (plus) means an addition.

The symbol “×” means multiplication.

The symbol “#” means less than.

The symbol “\$” means greater than.

The symbol “¶” means less than or equal to.

The symbol “§” means greater than or equal to.

The symbol “=” means equal to.

When the field schedules are received in the office, they will be recorded in a journal. The appropriate office schedules will then be attached to the field schedules, which will then be ready for checking.

FOR CHECKERS

Headings: The checker will first fill out the headings of the office schedules. By Mine Sheet No. of Schedule A is meant the Mine Sheet No. of Schedule I; by Personal Sheet No. on Schedule B is meant the Personal Sheet No. of Schedule II; and by “of Mine Sheet No.” on Schedule B is meant the Mine Sheet

* Replace the B's in the left-hand margin of Schedule II by E's for Schedule IV. Also replace C3 and C4 of question 27, Schedule II, by F 1 and F 2 for question 27, Schedule IV.

No. of Schedule II, question 3; by Mine Sheet No. on Schedule C is meant Mine Sheet No. of Schedule I, and by Personal Sheet No. From ——— to ——— is meant the lowest and highest Personal Sheets Nos. appearing on all the Schedules II. These latter figures should run consecutively, and where they do not, a note should be made. Correspondingly similar remarks apply to Schedules D, E, and F, and IV and III. By date is meant present date.

Checking: At the beginning of column (2) of each of the office schedules, the checker will insert his name alongside of the word "by." The process of checking then consists of testing the relationships outlined in column (1). Where the relationship holds, place a check in column (2) alongside of the corresponding relationship in column (1). Where this relationship does not hold, place a cross. Where blanks are indicated in various questions in column (1) insert the appropriate figures and then test the relationship.

FOR EDITORS

In general, all office schedules will be considered by two editors. In cases of doubt, more than two may be consulted. The first editor will sign his name at the head of column (3) alongside the word "by" and will go through the checks and crosses in column (2).

Case I.—If there are no crosses, he will insert check in column 5, corresponding to each relationship, leaving columns (3) and (4) blank. This will be the only case where only one editor will edit the Schedules. This editor will then sign his name at the bottom of column (5) of the last sheet of the office schedule.

Case II.—Where there are crosses, the editor will determine from the markings in the left-hand margin of the field schedules what questions of the field schedule are involved. Where the notation A-10 is used, for example, reference is made to question 10 of Schedule A; where the notation I-6 is used, for example, reference is made to question 6 of Schedule I. "Ind" indicates an independent question.

Thus, for example, if A-10 has a cross, I-19 is wrong. The editor is then to use his judgment, and all possible data on the field schedule, to determine if possible what the correct result in I-19 should be. Caution must be observed, however, in retaining the objectivity of the field schedule. All suggested corrections will then be inserted in column (3) of the office schedule, corresponding to the particular incorrect relationship. If the editor finds he cannot suggest a correction, since the objectivity

would be destroyed, write "none" in column (3) in the proper place. The schedules will now be submitted to a second editor.

The second editor will sign his name at the beginning of column (4) alongside of the word "by." The next step is to consider the suggested corrections. Where the second editor agrees with the first, he is to write the word "same" in the proper place in column (4). Where he disagrees, a consultation may ensue, and a decision reached.

In column (5), insert a check for every acceptable relationship, and an "R" for every rejection. If the suggested corrections have been approved, the relationship will have a check even though column (2) had a cross.

When an answer is to be changed on a field schedule as a result of an approved correction, the original answer on the field schedule is to be crossed out in red pencil, and the new result inserted in red, with the initials of the second editor. This will be done by the editor approving the suggested corrections, at the time of this approval.

The last step involves checking or rejecting the answers of the field schedules. For this purpose, red pencil will be used. A guide will be indicated alongside of each question of the field schedule indicating what relationship must have held in order that that particular question be acceptable. If the question is acceptable, place a check at the extreme left (in red), if not acceptable place an "R." A general scanning review of the questions of the field schedule, taking into consideration the checks and rejections, will then complete the process of editing.

APPENDIX B

OFFICE SCHEDULES

ANTHRACITE COAL INDUSTRY COMMISSION

SCHEDULE A

Checks Among Questions of Schedule I

Date.....

Mine Sheet No.....

Relations (1)	Check or Cross by (2)	Suggested Corrections by (3)	Approved Corrections by (4)	Final Check (5)
1a. In ques. 6, no. of names = no. indicated.				1a.
b. No. in ques. 6 ¶ no. in ques. 10.				b.
2. In ques. 9, individual items = total.				2.
3. In ques. 11, no. ¶ total no. in ques. 10.				3.
4. In ques. 12, no. ¶ total no. in ques. 10.				4.
5. In ques. 13, no. ¶ total no. in ques. 10 — no. indicated in ques. 6.				5.
6. Total no. workers indicated in ques. 14 + no. in ques. 13 ¶ total no. in ques. 10.				6.
7. No. of recipients in ques. 16 + no. in ques. 13 ¶ total no. in ques. 10.				7.
8. In ques. 17, no. # 24.				8.
9. In ques. 18, no. # 7.				9.
10. In ques. 19, no. # 30.				10.
11. In ques. 25, no. in past month & no. in past week.				11.
12. Sum of answers in ques. 26 = 100%.				12.
13. No. indicated in ques. 27 § no. of names in same question.				13.
14. "Per week" of ques. 24.....(a) Sales price per load "now" of ques. 29.....(b) $a \times b$.....(c) Ques. 9, total weekly expenses .....(d) Total money, ques. 14.....(e) $d + e$.....(f) $c - f$.....(g) $g \div$ no. indicated in ques. 6 .....(h) Ans. to ques. 15.....(i) $h = i$				14.
15. Ans. to ques. 4 ¶ ans. to ques. 5.				15.

ANTHRACITE COAL INDUSTRY COMMISSION

SCHEDULE B

Personal Sheet No.....

Checks Among Questions of Schedule II

Date.....

of Mine Sheet No.....

	Relations (1)	Check or Cross by (2)	Suggested Corrections by (3)	Approved Corrections by (4)	Final Check (5)
1.	In ques. 6, no. employed ¶ total.				1.
2.	In ques. 10, no. should correspond to residence in mining district during those years in ques. 8.				2.
3.	Ques. 11 should correspond intelligently with ques. 8.				3.
4.	Length of time in ques. 18 ¶ length of time in ques. 17.				4.
5.	If ques. 21 is checked, "accepted" should appear in ques. 20.				5.
6.	If ques. 22 has significant answer, ques. 21 should be checked.				6.
7.	Ans. to ques. 24 should correlate with answers to ques. 17, 18, and 19.				7.
8a.	1937 — answer to ques. 26 § ans. to ques. 11.				8a.
b.	1937 — answer to ques. 26 § ans. to ques. 25.				b.
9.	Reasonable relationship between ques. 4 and ques. 10.				9.
10.	Last date in ques. 17 should be answer to ques. 25.				10.
11.	Ques. 26 § total of ques. 27.				11.
12.	If answer to ques. 9 is "yes," answers to ques. 10, 11, 12, 13, and 14 should be specific. If answer to ques. 9 is "no," ques. 15 should be answered specifically.				12.
13.	If ques. 23 is answered, "accepted" should appear in ques. 20.				13.

ANTHRACITE COAL INDUSTRY COMMISSION
SCHEDULE C

Checks Between Schedules I and II

Mine Sheet No.....

Date.....

Personal Sheet No. From.....to.....

Relations (1)	Check or Cross by (2)	Suggested Corrections by (3)	Approved Corrections by (4)	Final Check (5)
1. Actual count of schedules II for this mine.....(a) No. in ques. 21 of Schedule I.....(b) No. in ques. 10 of Schedule I.....(c) $a + b$ should = c.				1.
2. Total of all answers to Schedule II of particular mine. Ques. 14 ¶ no. in ques. 11 of Schedule I.				2.
3. Schedule II, ques. 27 (1) ¶ Schedule I, ques. 5.				3.
4. No. in ques. 6, Schedule I § total of all answers to earnings of Schedules II of particular mine, ques. 27 (1) marked "P".				4.
5. Schedule I, ques. 12 § total of all answers to Schedules II of particular mine, ques. 16.				5.
6. Schedule I, ques. 13, § total of all W earnings of Schedules II of particular mine, ques. 27 (1).				6.
7. Schedule I, ques. 14, total wages...(a) Schedule I, ques. 15 × no. in ques. 6 .....(b) $a + b$ § total answers to earnings on Schedules II of particular mine, ques. 27 (1), regardless of whether latter is marked W or P. All these should be weekly figures.				7.
8. Schedule I, ques. 24 § sum of all answers to accidents on Schedules II of particular mine, ques. 27 (1).				8.

ANTHRACITE COAL INDUSTRY COMMISSION SCHEDULE D

Checks Among Questions of Schedule III

Date.....

Breaker Sheet No.....

Relations (1)	Check or Cross by (2)	Suggested Corrections by (3)	Approved Corrections by (4)	Final Check (5)
1. Ques. 4 or ques. 8 = (approximately) 4 × rent item in ques. 15.				1.
2. Ques. 6 = (app.) 4 × repair item in ques. 15.				2.
3. In ques. 7a, if both "operator" and "breaker owner" are checked, ques. 2a and 3 should have same answer. If "other person" is checked, ques. 7b should be answered specifically.				3.
4. There must be at least one "O" an- swer to the questions III 4 and III 8.				4.
5. Ques. 11 should correspond with ques- tion 9.				5.
6. In ques. 12, 4 × av. per week = av. per month.				6.
7. In ques. 13, 4 × av. per week = av. per month.				7.
8. All items of ques. 14 = 100%.				8.
9. Ques. 15 a. Total = sum of individual items. b. Ques. 13, av. per week × av. size = (app.) estimated tons sold in ques. 15. c. Ques. 12, av. per week × av. size = (app.) estimated tons bought in ques. 15. d. Price received for coal × estimated tons sold per week = estimated weekly receipts. e. Estimated price pd. for coal at breaker & est. price paid at mine. f. Profits weekly + total weekly pay- ments = estimated weekly receipts. g. Weekly payments for coal = price pd. per ton × est. tons bought.				9. a. b. c. d. e. f. g.
10. No. in ques. 16a + no. in ques. 16b .....(a) No. in ques. 16d.....(b) No. of truckers in ques. 10.....(c) No. of breaker owners specified as truckers in ques. 2c.....(d) a × b ÷ c + d.				10.
11. The time element in ques. 18 should correspond with the time element in ques. 9, 11, 12, and 13.				11.
12. Total no. in ques. 19.....(a) Total no. in ques. 10.....(b) a = b.				12.

ANTHRACITE COAL INDUSTRY COMMISSION
SCHEDULE E

Same as Schedule B as shown on page 77

ANTHRACITE COAL INDUSTRY COMMISSION
SCHEDULE F

Checks Between Schedules III and IV

Date.....

Breaker Sheet No.....

Relations (1)	Check or Cross by (2)	Suggested Corrections by (3)	Approved Corrections by (4)	Final Check (5)
1. Schedule III, ques. 15, Profits \$ total ans. in Schedule IV, ques. 27 (1) marked "P".				1.
2. In general, each Schedule IV, ques. 27 (1) length of time ¶ III — 9.				2.
3. Ans. to III — 10 \$ total of all Sched- ule IV for particular mine.				3.
4. Ans. to III — 19 should correlate with individual ans. to IV — 4.				4.
5. Ans. to III — 15 "pay rolls" \$ total of all answers to earnings of Schedule IV, ques. 27 (1) marked "W".				5.

APPENDIX C

STATISTICAL METHODS

A. BOOTLEG HOLES

Despite the attempt to generalize and categorize all answers to all schedules during the process of editing the schedules, numerous problems arose which were of an individual nature. Each schedule brought with it its own particular set of problems, necessitating careful study and a complete understanding of the situation regarding that particular schedule, before its answers could either be accepted or rejected. The actual process employed in going through the various schedules for consistency and accuracy of data is described in Appendix B. It should not be supposed, however, that a rigid and automatic adherence to the procedure therein outlined sufficed in the editing of the schedules. Every schedule on each breaker and each hole and each person making answers received individual study, until a complete understanding of each was obtained. That an inconsistency between two replies could slip unnoticed through the maze of interrelated questions was hence not very likely. Inaccurate data were rejected directly on the schedules.

Having determined the acceptable information, the data were then tabulated on large tabulating sheets, whose horizontal stubs were the various questions of the various schedules. In this way 50 schedules, of the same type, were consolidated into each tabulating sheet, of which each column presented 50 answers to the same question. This arrangement simplified the tallying of results. When all schedules had been tabulated as described above, frequency tables of the desired information were constructed (after a preliminary testing of the class intervals from a 25 per cent sample of the data on hand), and the results were tallied according to the intervals selected. The final tables which appear in the text of this report therefore represent the unadjusted distribution of the responses actually given to the field enumerators by the bootleggers.

The averages presented on the various subjects are weighted arithmetic averages obtained by multiplying the midpoints of the various class intervals by their respective frequencies, summing the result and dividing by the total number of cases. In some cases the extreme values were of sufficient importance to cause considerable deviations of the arithmetic average from the median. For example, in the case of the question on the number of months the bootleg holes had been in operation, the arithmetic average was about seven and one-half months, but the median was three and one-half months. These two figures, of course, serve different purposes. The median is the middle

case in the frequency distribution; 50 per cent of the cases are larger than the median; 50 per cent are smaller. The arithmetic average, on the other hand, is influenced by skewness in the distribution. A consideration of both is necessary to a good understanding of the actual situation.

One of the most important procedures involved in determining the averages was the question of whether the particular subject was influenced by one or more other factors important enough to necessitate weighting the average by these other factors, or whether an unweighted average was the more desirable. The procedure followed was to weight the subject by any factor that had a pronounced effect upon it, in all cases where anything more than a rough cross-section picture was desired. When the factor influencing a subject presented only a small range of variation for more than half the observations an unweighted average was used, since under such circumstances the weighted and unweighted averages coincide fairly well.

Thus the average for the number of tons produced per week per bootleg hole was weighted by the length of time each hole had been in production. The weekly average obtained for each hole was hence indicative of average weekly output produced over a substantial period of time, and the average of these figures for the total of all holes gives a representative figure for total production. Holes that had been producing coal for less than four weeks were excluded, since an average of weekly figures for less than a four-week period would not be particularly significant. The average figure for each hole was hence derived from at least four items. It was determined in this way that each hole produces an average of 32.5 tons per week. With an estimated total of 1,965 holes, the total weekly bootleg hole tonnage hence amounts to about 64,000 tons. Variations due to seasonal factors are allowed for in this figure, since the original weekly average production figures as estimated by the bootleggers themselves allowed for such variations. It is estimated that because of time lost doing dead work in the holes, and because of rain, snow, and other natural phenomena, the number of weeks of actual production of coal per year averages only 36. Therefore the estimated total yearly output of the bootleg holes is 64,000 tons X 36, or about 2,300,000 tons. To obtain the total annual illegal tonnage another 100,000 tons must be added, representing gleanings from culm and refuse banks. Since it is estimated that bootleg production has decreased by about 15 per cent from its peak in 1935, the 1935 bootleg production was about 2,900,000 tons, or 5 per cent of the 54,000,000 tons of legal anthracite mined in 1935.

Both the median and the arithmetic average prices received per ton of coal are \$2.65. This figure was not weighted by the

number of tons sold, since the range of prices was very small. More than 50 per cent of the cases are grouped closely around about the average.

In connection with average earnings, however, the time element is an important factor. Hence the figure for the average weekly earnings per person was weighted by the length of time such earnings had been received. The resulting average figure was \$19.70 per person per week, for those bootleg miners who are partners in the holes and whose earnings are hence profits. This figure, however, excludes the 5.2 per cent of the bootleg miners who are paid a stipulated wage. For the wage receivers the average wage is \$12.50 per week. Since the number of those paid on a wage basis is small and their range of earnings narrow, only an unweighted arithmetic average of weekly earnings was computed to obtain this figure of \$12.50.

In computing the average weekly expenses per bootleg hole (excluding the pay-roll cost), no consideration was given to the number of men working at the hole. The range of the number of men per hole is small, and the correlation between expenses and the number of men is not great. One man more or less influences the power and supplies items but little. The \$13 weekly average obtained here is therefore a simple arithmetic average. The same thing is true of the figure for the average original investment in each bootleg hole before the production of coal, and for the average length of time of operation per bootleg hole at the time of the survey. The median figure of 3.5 months obtained in the latter case is far more significant than the arithmetic average of 7.5 months. The latter figure is considerably influenced by the higher extreme values.

Since there is a high degree of correlation between length of time required for dead work and the number of miners involved, the figure for the average amount of time spent on dead work in a bootleg hole before the extraction of coal was weighted by the number of men engaged in the dead work.

B. BOOTLEG BREAKERS

A bootleg breaker is not as much subjected to the vagaries of nature as are the bootleg holes. It can hence operate 50 weeks during the year; two weeks are lost through machinery repairs, exceptionally bad weather, etc. Thus 342 breakers, operating 50 weeks per year and selling 112 tons of sized coal per week, have an annual output of $342 \times 112 \times 50$, or 1,900,000 tons. This figure is smaller than the figure for the total annual bootleg hole output of 2,300,000 tons, given above. The difference is accounted for as explained in Chapter VI, Section I.

The estimated annual tonnage bought by bootleg breakers from the holes is $119 \times 342 \times 50$, or 2,035,000 tons, since the average

number of tons bought per week per bootleg breaker is 119. This total tonnage is approximately equal, as the above requires, to 89 per cent of the aggregate of 2,300,000 tons sold annually by the bootleg holes. The following table shows the total sums paid by the bootleg breakers for such coal:

BOOTLEG BREAKER PURCHASES

1,085,000 tons @ \$3.40 ea.....	\$3,690,000
950,000 tons @ 2.65 ea.....	2,516,000
	<hr/>
	\$6,206,000

The average price paid per ton = $\frac{6,206,000}{2,035,000} = \3.05 . This

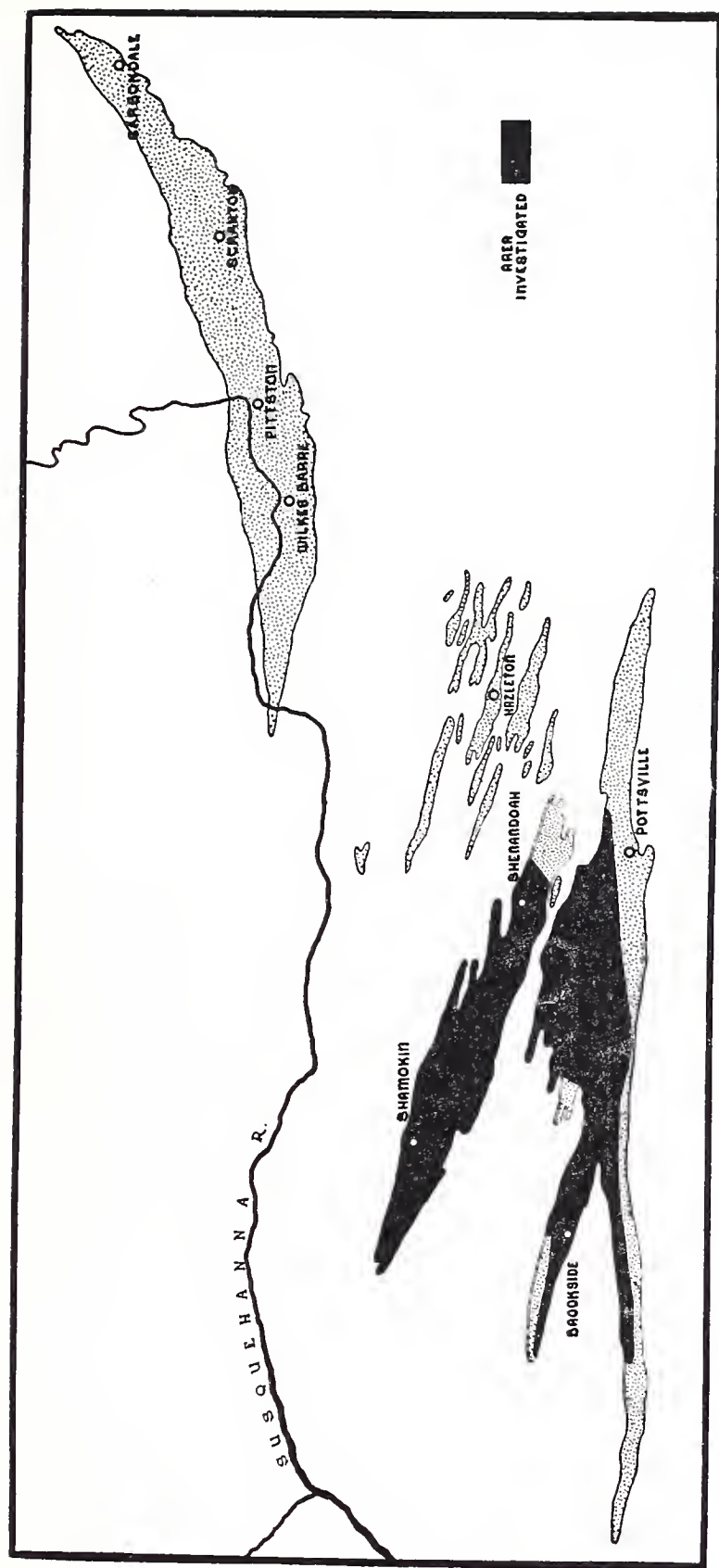
figure agrees with the result obtained from a frequency table of prices paid by the bootleg breaker operators.

Since the total weekly bootleg breaker profits of \$77 are shared among an average of 1.4 men, the average per man is \$55 per week. This figure agrees with the average computed from the frequency distribution of weekly profits per person. Similarly, the pay roll is shared among an average of 2.4 men (on the average there are 3.8 men per breaker), so that each man gets \$14. This figure too agrees with the corresponding frequency distribution of weekly earnings per person.

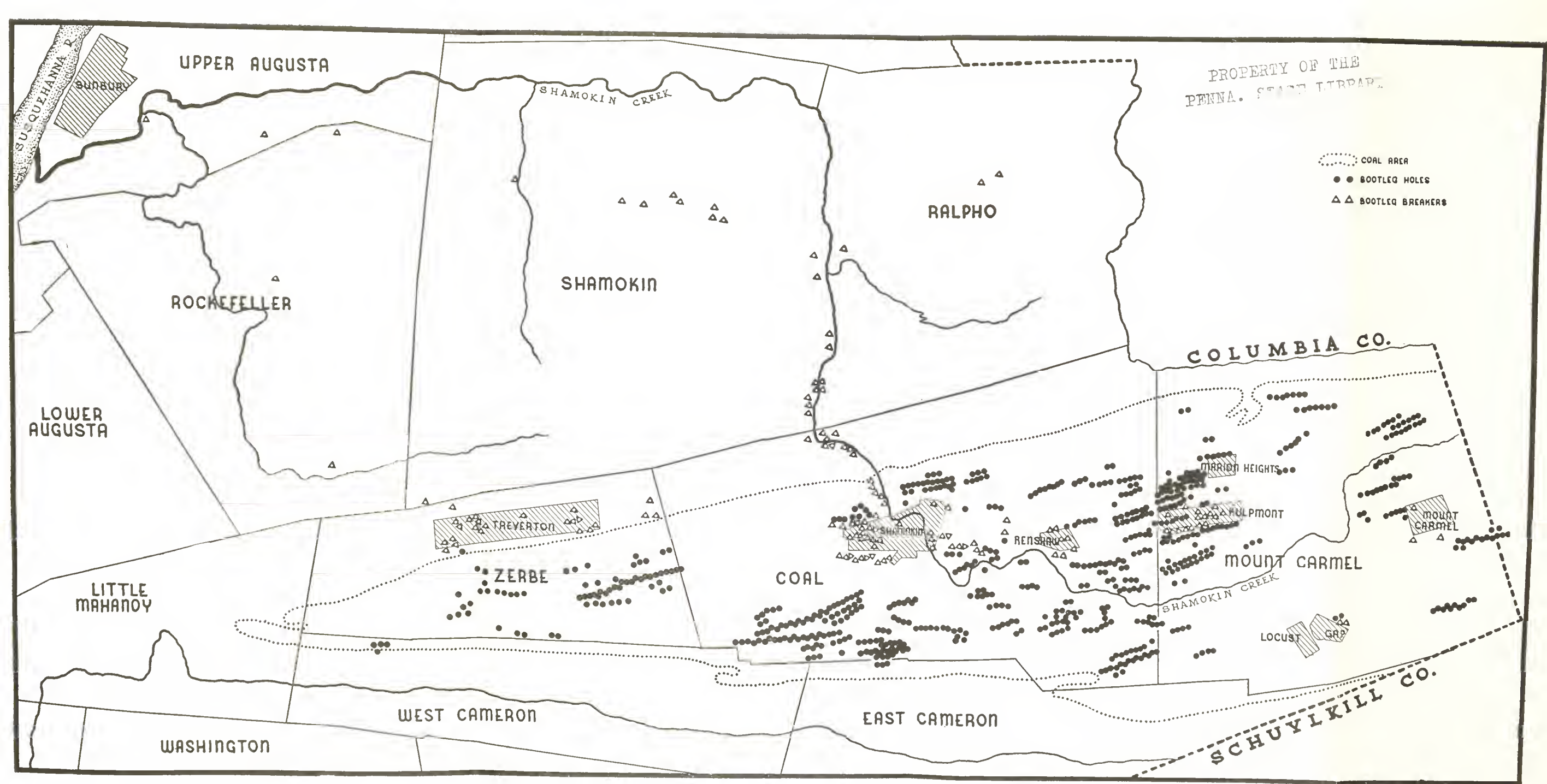
C. GENERAL REMARKS

It is possible that the data on families might contain duplications, since different members of the same family might work in bootleg establishments. To avoid getting incorrect averages as a result of this possible duplication, the data on families were computed both for all bootleggers, and then separately for those bootleggers who were the only members in their families engaged in bootlegging. The results from the two procedures were identical. Even if duplications do exist, therefore, they do not influence the results here obtained.

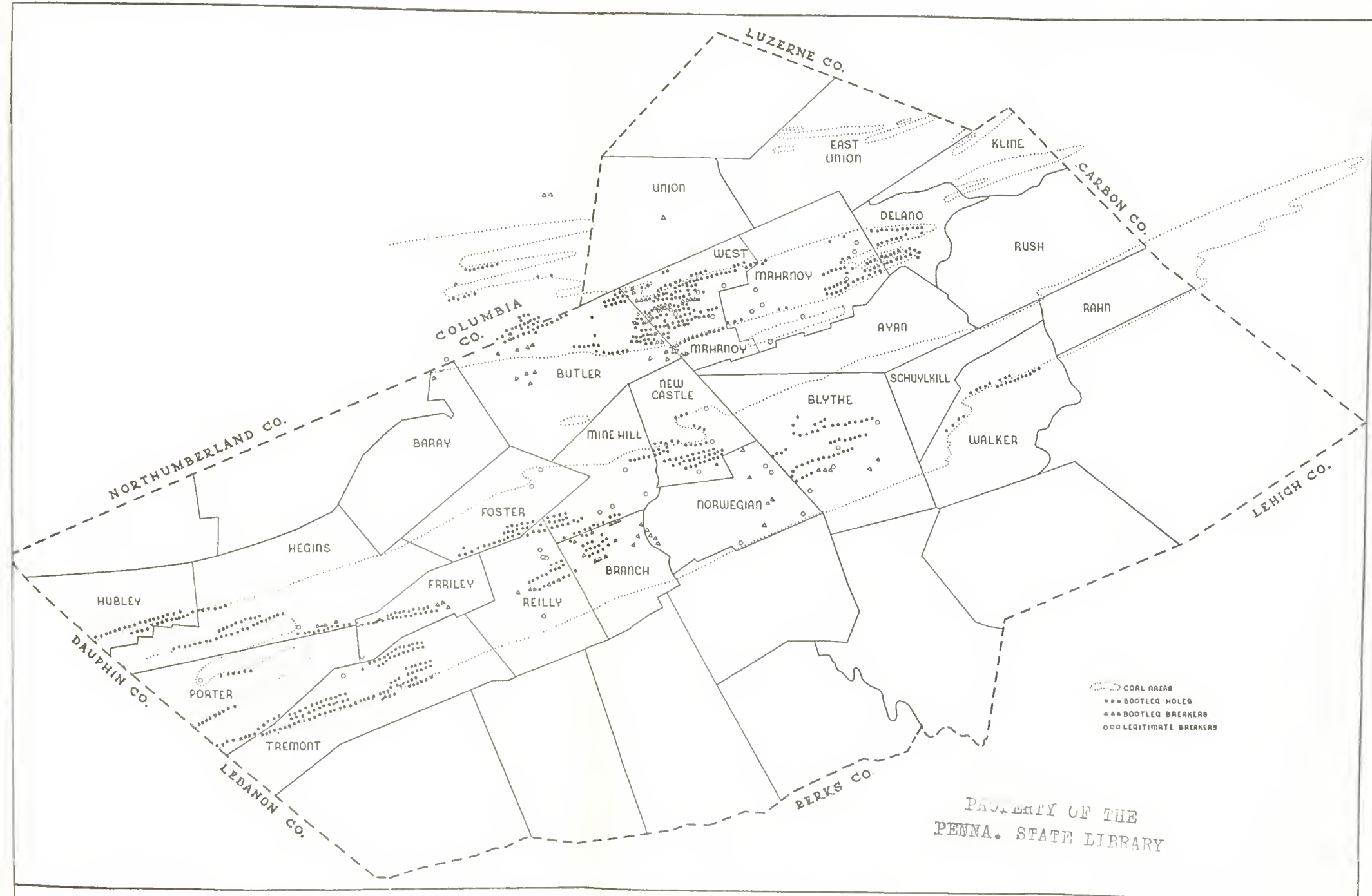
One other point of general interest deserves mention. Whenever average figures were requested of the bootleggers in the original survey, these averages were accepted only in cases where the average was based on at least four items.



Map 1—The Anthracite Fields of Pennsylvania showing area investigated



Map 2—The Bootleg Area of Southeastern Northumberland County



Map 3—The Bootleg Area of Schuylkill County



